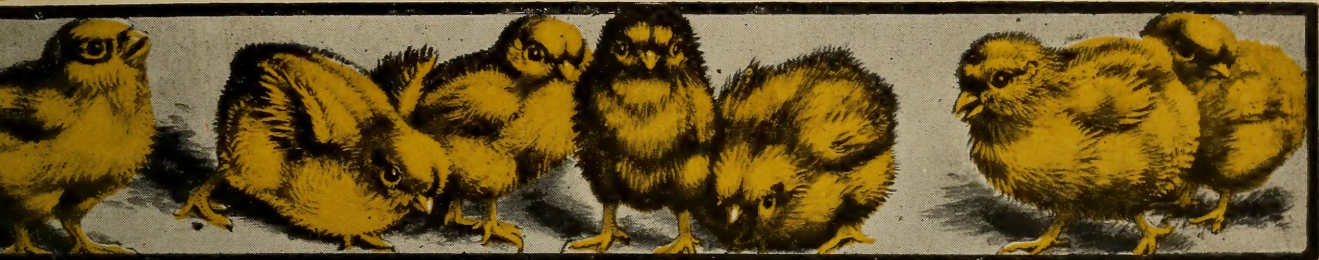


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SECRETS OF SUCCESS



WITH BABY CHICKS

LATEST CHICK BOOK PUBLISHED
FIRST EDITION

Edited and Compiled by
CAMPBELL L. CORY

The A. D. Hosterman Co., Publishers
Springfield, Ohio



Secrets of Success With Baby Chicks

Devoted to brooding, feeding and raising chicks of all varieties with special chapters written by some of the country's foremost breeders giving their secrets and their own methods of raising chicks successfully.

Edited and Compiled by
CAMPBELL L. CORY, Editor Poultry Success

FULLY ILLUSTRATED
PRICE FIFTY CENTS

Published By
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Springfield, Ohio

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A HAPPY FAMILY

This illustration is published by courtesy of W. C. Huber, prop. of Huber's Reliable Hatchery, 112 W. High St., Fostoria, Ohio.



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CHAPTER ONE



BROODING AND FEEDING BABY CHICKS SUCCESSFULLY

**Details Must Be Watched—Success Only Comes From Correct Feeding
And Proper Brooding—Important Pointers Especially
For Beginners**

By Campbell L. Cory.

The last thing a chick does before piping the shell of an egg and coming out to start its life in the world is to absorb or assimilate the yolk of the egg. This is nature's way, and in the yolk of the egg nature provides sufficient nourishment to last the chick 36 to 48 hours. No food should, therefore, be given the chick for this length of time any way. Some poultrymen begin feeding when their chicks are only 24 hours old, but they usually have trouble later with cholera. The majority of the most successful breeders wait for at least 48 hours after the chicks are hatched until they are given their first food, while some even wait until the chick is 72 hours old.

This is one reason why day-old chicks can be shipped such distances and in good condition. This is likewise the reason why safe delivery can be guaranteed for a thousand miles or more by the shipper, whether a poultry breeder or hatchery. It is calculated, I believe, provided good connections are made, that a box of chicks can be sent by an express company or by mail a thousand miles within 24 hours or possibly a few hours more.

The old saying, "A bird in hand is worth two in the shell," is true enough and this is one of the reasons why the baby chick industry has grown to such proportions within the past few years. The purchase of day-old chicks has many advantages, especially for the novice, over the customary method of buying eggs and hatching them, and while many more thousands of chicks are being hatched by the larger hatching concerns and shipped each season, still thousands of breeders would rather buy eggs for hatching from a reliable poultryman, knowing exactly what stock they are buying, and hatch the chicks themselves. When a person sets a hen or incubator and hatches the chicks more pleasure is derived from poultry raising.

Vitality Chicks That Grow

But in the purchase of the chicks I want to suggest caution to all prospective buyers. Do not buy the very cheapest but at the same

time don't pay an exorbitant price. In baby chicks, as in most other things, it pays to pay a little more and get a standard article. What you want, too, is chicks with vitality, chicks that will grow into strong healthy birds. The word "vitality" is the keynote in success with chicks.

Thousands of beginners in poultry raising, as well as many expert breeders, have found that the hardest problem after hatching or buying chicks, is to make them live through the first ten days. Hundreds of thousands of chicks are lost each year during this critical period because of careless and wrong feeding. Success with chicks depends entirely upon the poultry raiser himself, for to be successful in brooding and feeding chicks, one must not be careless in regard to details, haphazard about feeding or negligent about sanitation.

First Feeding Important

After being placed in the brooder they should have plenty of fresh water, as they will want something to drink as well as eat. The first feed should consist of bread crumbs and the yolk of hard boiled eggs crumbled together, a good commercial dry milk mash, or any of the reliable baby chick foods now advertised. This should be their feed for at least four or five days when they can be given any good commercial chick feed. In the meantime, too, you can give them some pin head grit and cover the bottom of the brooder with fine, clean sand.

Do not overfeed the chicks and it is best to feed oftener and not so much at one time.

Feed on a bare board the first two days. The third and fourth days scatter part of the feed on the board and the rest of it in the litter, and make your chicks work for it. Always spread or scatter the food enough so that all the chicks will be able to get what they need, otherwise the weak and timid ones will go hungry.

A little chick will not develop properly without exercise. The brooder should be roomy enough to avoid the danger of crowding, and an apartment strewn with straw should be attached to the brooder or hover where the chicks can scratch and run about freely, as this promotes growth and health.

There are numerous suggestions as to how best to feed broods to develop little chicks, but by following these general directions, even the beginner should have success.

Pointers Especially for the Amateur

Do not feed chicks for at least 36 to 48 hours after they are hatched. Some poultrymen wait 72 hours.

If you buy day-old chicks, estimate the time they have been on the road from the hatchery before feeding.

Feeding chicks before 36 hours often causes cholera which many mistake for white diarrhoea.

Dry feed is better than a wet mash during the first 10 days.

Do not feed chicks green food or meat scraps during the first week.

Do not overfeed the chicks. It is better to feed a little oftener and not so much at one time. Feed five or six times a day.

See that every chick comes out from under the hover at feeding time.

Always keep fine grit and charcoal and fresh water before chicks, changing water at least twice a day. Always use lukewarm water. Never use cold water.

Place water where chicks can't scratch litter into it. If chicks spill the drinking water and the litter becomes soaked, remove the wet litter.

Test brooder or hover and have same in good running condition before arrival of chicks.

Be sure chicks have plenty of sunshine. Chicks also require fresh air, but must be protected from drafts, especially floor drafts.

Have temperature in brooder a little high rather than too low. Chicks will get away from excessive heat while too little results in crowding.

* * * *

BROODER TEMPERATURE

I advise the following temperature for brooders or hovers.

First week—start at 95 degrees and reduce gradually to 90.

Second week—start at 90 degrees and reduce gradually to 85.

Third week—start at 85 degrees and reduce gradually to 80.

Fourth week—start 80 degrees and reduce gradually to 75.

* * * *

THE GREAT VALUE OF SKIM MILK

I wish here to call special attention to the value of sour, skim milk or buttermilk in baby chick feeding. Sour milk is very palatable, it also contains much food value in its casine which is a form of protein or nitrogen. The greatest benefit however lies in its disinfecting qualities. The lactic acid present kills and prevents the multiplication of intestinal bacteria.

White diarrhoea is one of the most dangerous of these forms. In order to get the greatest benefit from sour skim milk it should be given the youngsters to drink from the very first day being given in a closed vacuum fountain so that the chicks cannot get their feathers soiled with it.

It should be changed daily and the vessel kept perfectly clean. Experiments conducted at the Connecticut Experiment Station have proven its great value. Experiments conducted at the New Jersey Station show that where sour skim milk is used as mentioned the percentage of mortality was very materially reduced over pens that did not receive it.

Also the skim milk chicks made a gain in weight of over 28 per cent more than those receiving no milk. Since these conclusive tests it is needless to say that the majority of poultry keepers are feeding

skim milk (sour) or buttermilk to all of our young chicks during the brooding period with the greatest success.

* * * *

THE FOUR ESSENTIALS

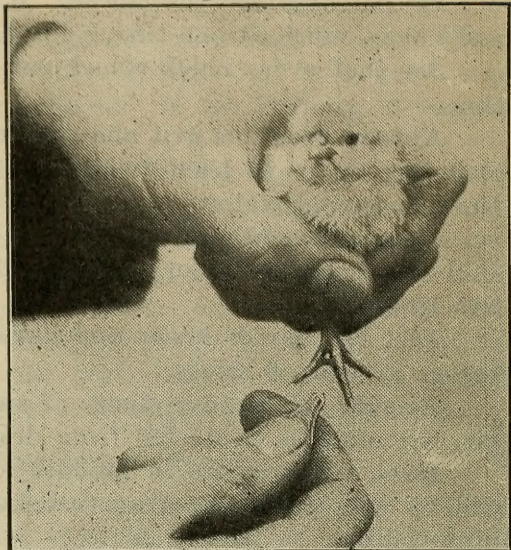
1. An understanding of the principles governing the growth and nutrition of chicks.

2. The working out of a simple, inexpensive but efficient ration.

3. The liberal feeding of sour milk to the youngsters for at least the first five weeks and longer if possible.

4. Watch the chicks carefully and remember that even the smallest detail is too important to be overlooked or neglected.

* * * *



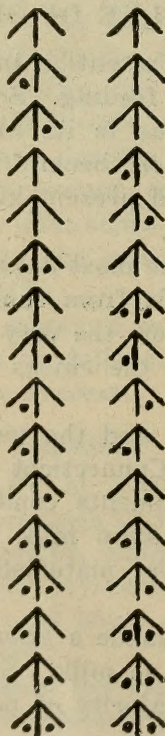
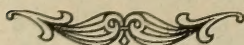
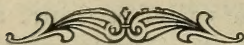
Toe punching a chick. A round hole is made in the web of the foot with a chick marker.

TOE MARKING CHICKS

The diagram below shows the 16 different combinations used in toe marking chicks. When the chick is a day old the thin web between the toes can be punched with a regular punch manufactured for this

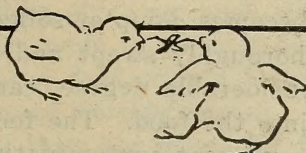
purpose without hurting the chick. For instance, all chicks hatched from a certain pen or mating, can be punched like No. 5.—the outside web of the right foot. All chicks from another pen can be punched like No. 3, the inside web of left foot. When these chicks are grown the owner can easily tell from which mating they came by referring to the toe marks. Later the toe marks can be supplemented by leg bands.

Method used in toe marking chicks to determine age and pedigree—or the mating which produced the chick. A small hole is punched in the web of the chick's foot between the toes with a pocket poultry punch or chicks marker. The diagram shows the 16 different combinations or toe marks possible.



Each one of these inverted V shaped marks in the accompanying diagram represents a chick's foot. The top two straight across are the feet of the same chick. The one on the left is the left foot, and the one on the right the right foot of the same chick and so on.

CHAPTER TWO

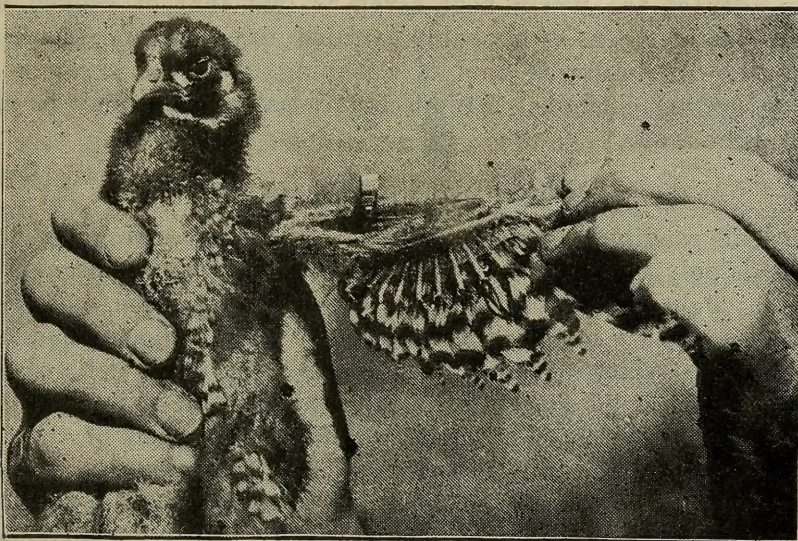


SOME ESSENTIALS IN FEEDING CHICKS

**Any Method of Feeding That Permits a High Mortality Is Expensive.
Untiring Care Is Absolutely Essential to the Success of Any
Method of Feeding Little Chicks.**

By Clara Nixon, Ithaca, N. Y.

The important objects to be accomplished in the feeding of young chickens are: (1) To bring to maturity or to marketable size and age as large a proportion of the hatch of chicks as possible; (2) to enable the chicks to develop large, strong, well-proportioned frames and good plumage for their variety; (3) to provide for as rapid a growth as is attainable, at as low a cost as is consistent with other requirements. In the fulfillment of these purposes the following factors must be considered: (1) The eggs must be incubated properly; (2) the chicks must not be left too long in the incubator after the completion of the hatch. They should be removed to a nursery, or brooder, when they are thirty-six hours old; (3) the chicks must be strong and vigorous when taken from the incubator; (4) they must be properly cared for and skillfully fed.



Wing banding a chick. Wing bands will not come off and serve as a permanent identification.

Cleanliness

All the pens, the food and water dishes, and everything used about the chicks should be carefully cleaned and disinfected at frequent periods. This care should begin before the chicks are put in the brooders and should continue throughout the entire time of brooding. As soon as the litter becomes damp or soiled it should be removed and the pens should be thoroughly swept and disinfected after the litter is removed. To a considerable degree, careful cleaning will prevent the tracking of filth into the food. The food dishes should be cleaned frequently in order to prevent contamination of the food supply, and the dishes for water should be washed once daily and scalded once each week. Drinking water should be supplied in vessels of such a form as will render impossible the fouling of the water by the chicks. Food should never be allowed to accumulate in the litter, since it is thus likely to become spoiled and unfit for the chicks. Neglect of sanitary precautions furnishes a fruitful source of disease.

Fresh, Untainted Food

Spoiled food or musty food of any kind should never be given to young chickens. Moistened food spoils very quickly in summer, and for this reason, only a quantity sufficient for one meal should be mixed and any food that becomes even slightly soured or moldy should be thrown away. Cracked grain often heats and becomes musty, and, if fed, will cause serious bowel trouble in chicks; therefore, if only one ingredient in a quantity of chick feed of this kind has become musty while in storage or in any other manner, the entire lot should be discarded. Beef scrap manufactured from tainted meats may also prove dangerous food. A convenient method of testing beef scrap is to warm a small quantity of the material by holding it in the hand. If the odor of the warm beef scrap is like that of cooked or even scorched meat, there is probably nothing unwholesome about it; but if the odor is similar to that of decaying flesh, the scrap is wholly unfit for young chickens. Slight mustiness in grain may be detected in the same way.

Quantity and Quality of Food

It will readily be conceded that if chicks are not given sufficient food to supply their bodily requirements, they cannot be expected to grow satisfactorily. It is equally true that the food may be abundant but of such a quality that it will not yield sufficient nourishment. For example, chicks fed on a ration consisting largely of bran or some other material containing a large proportion of indigestible fiber could not eat enough of the food to supply the needs of their bodies, although their crops might be constantly full. On the other hand, chicks fed chiefly on beef scrap or on sour milk curd would, in their efforts to fill their crops, get more food material than they could possibly digest. In the first case the chicks would be starved, and in

the second they would be overfed. Chick foods sometimes contain a high percentage of small seeds encased in a hard shell, such as millet. The digestive organs of young chickens may not be able to crush this shell, and the chicks may thus eat a large quantity of the grain while obtaining little nourishment from it.

Young chickens should be given as much wholesome food as they will eat, but they should be made to clean it up once a day. If they fail to do this the remaining food should be removed, and no more should be given until signs of hunger appear. The chicks should be kept in such condition that they are eager for food at feeding times, but should be sent to roost with full crops; and unless the attendant is to be at the brooder by daylight or soon after, a little grain should be left in the litter at night so that the chicks may find it the first thing in the morning. The best time to stint the chick is at the morning meal; they are then more active and will hunt vigorously for every scrap of food left in the litter.

Cracked and Ground Grains

Chicks appear to need both cracked and ground grain: the latter because the nourishment is more easily and quickly available; the former because the additional energy needed to reduce the larger food to available form tends to strengthen the digestive system. The difference in the mechanical condition of the food also furnishes a variety in the ration, and the chicks tire less quickly of their food. If ground food is given at night the crops of the chicks empty quicker than is the case when their evening meal is of cracked grain.

Animal Foods

Fowls seem to need animal food. In the natural state the chicks are reared at a season when the supply of insects and earth-worms is abundant, and the mother hen exerts herself to procure this food for her brood. Since chicks reared in brooders are under artificial conditions, the supply of insects is very limited and animal food of some sort must be furnished to remedy this deficiency. The material generally preferred for this purpose is beef scrap. If fresh and untainted this gives very good results, when fed in such a manner that the chicks are not obliged to eat more of it than they desire. In an experiment conducted at Cornell station in 1909, chicks allowed free access to beef scrap from the first meal ate, in the first six weeks, 5 to 8 per cent of total food in this material. In another experiment, the data of which have not been published, the chicks that had hopper-fed beef scrap with cracked grain and ground food, consumed in beef scrap, during the first eight weeks, 8 to 10 per cent of their total food, excluding green food, and the results were apparently good. One flock, however, was given the mash mixture and beef scrap, with no cracked grain. For this flock the quantity of beef scrap consumed was more at times than all the other food. Eighty-nine per cent of these chicks

died of digestive troubles before they were seven weeks old, probably because of their abnormal consumption of a highly concentrated food.

Infertile eggs are sometimes used for the animal food. These should be given with caution, however, as they are very concentrated and may cause digestive troubles if fed in too large quantity.

Sour Milk Excellent

Skimmed milk and its products are greatly relished, but if sour milk curd is fed, care must be taken that the chicks do not get too much. If the milk is given as drink, an unlimited supply at first might cause bowel trouble; after the chicks have become accustomed to it, they may have all they want. Skimmed milk is not to be used as a substitute for water.

Commercial milk albumen has been tried in an experiment in Cornell University, but in this case it did not give so good results as did skimmed milk. How far milk products may be substituted for meat scraps and meat meals in chicks feeding has not been proved, although in the test of seven methods of feeding chicks, referred to above, those chicks that had no milk ate 5 to 7½ per cent of their total food excluding green food in beef scrap, while those given a mash moistened with skimmed milk or a powdered milk solution ate only 4½ to 5½ per cent of their total food in beef scrap.

Green Foods

Green foods are greatly relished by chicks and seem necessary to their best growth. These foods furnish wholesome nourishment at low cost and supply bulk to a chick ration without excess of fiber. Chicks should be given all the green food they will eat. After the first few days this is the best supplied by a grass run. Until the chicks can go out into the yards, green food should be furnished them.

Lawn clippings are often obtainable in the summer. These are much relished, but they should be used when fresh and crisp. Fresh clover or alfalfa is very good; it should be shredded quite fine if given to the young chickens. The very young chickens are fond of fresh sod, chickweed, or lettuce, and they are able to pick off the tender leaves; lettuce, however, is often too expensive to use in this way. The older chicks enjoy the leaves and the blossoms of vetch. Sprouted oats are very good and may be provided at any time of the year. The following description of the process of sprouting grain is reprinted from Bulletin 284, Cornell University Agricultural Experiment Station:

Sprouting Oats

"The operation of sprouting grain as a green food requires considerable expense for labor. Sprouted grain, however, appears to have some advantages over other forms of green food, which justify the expense. This is particularly true in the feeding of young chickens during the season when they cannot have access to the ground.

"For sprouting, soak in warm water one ten-quart pail full of oats for 24 hours. Pour this grain on a tray. It will fill the tray level full. Sprinkle each trayful of grain with warm water each morning. The grain must be kept damp all the way through the mass if it is to sprout uniformly. The time required for the grain to sprout and grow will depend largely upon the temperature of the room, which, ordinarily, should be kept at 60 or 70 degrees Fahrenheit, or warmer. In a room not artificially heated, during the spring of the year, in this state, about seven to ten days are required to sprout the grain and grow the leaf about three inches high."

For young chickens it is best to feed the grain when the top has reached a length of two inches; if allowed to grow longer the sprout is likely to become tough. Chicks will eat both sprouts and roots, and they will eat the grain also as soon as they are large enough to swallow it. For the first week it is better to shred some of the material and scatter it over the food, so that all the chicks will learn to eat the green food. The sprouted grain may be cut in squares from the trays and placed in the pens for the chicks to peck at. Care should be taken to give no more than will be eaten.

The grain may be sprouted in shallow boxes or in well-drained flats kept in a living room, if needed for only a few chickens.

Ash, Grit and Charcoal

Growing chicks need a certain amount of mineral matter for use in bones, muscles, and feathers, consisting in large part of lime in some form. Ash is not supplied in sufficient quantity by the grains and the green foods; in the natural environment the birds probably obtained it from the soil. Most grain foods contain less than one per cent of ash, while meat scrap and meat meal have 4 to 5 per cent; animal meal has 30 to 40 per cent of ash, and bone meal and granulated bone contain 60 to 75 per cent. That additional mineral matter is needed by



A shipment of chicks just received in splendid condition from a hatchery many, many miles away.

fowls was proved by experiments at the Cornell University Agricultural Experiment Station, where it was shown that the bones of fowls that were kept from the ground and deprived of additional lime in the form of oyster shells, bone meal, and similar substances, had much lower breaking strength than had those of other fowls kept under similar conditions but supplied oyster shells. Oyster shells do not seem to be desirable for young chickens, but the mineral matter needed may be supplied easily and cheaply in the form of bone meal or of fine granulated bone. The bone meal seems better for the younger chicks, and it may be given with the dry mash or with the moist foods. If granulated bone is used care should be taken that it contains no fine, sharp splinters, as these might injure the digestive tract of the chicks.

A constant supply of grit seems necessary for the health of the chicks, and from the first meal this should be supplied in the food in such a manner that the chicks must find it. They will soon learn to look for it. Fine granulated charcoal should be included in the food because of its good effect on the health of the chicks. It seems to be a preventive of some digestive troubles. The chicks eat this material with great relish, and they may be given as much of it as they desire.

Palatability of Food.

If chicks are forced to eat food that is disagreeable to them, they will eat as little as possible. Such feeding soon results in slow growth and high mortality, especially if the stock is very young; an unpalatable ration is therefore an expensive one, even though the first cost may be small. A single food material that the chicks do not relish may spoil the effect of an entire ration, particularly if the material is in a ground food mixture. Food that the chicks like is looked for eagerly and eaten with a relish, an active scramble often being an accompaniment of the meal. If a sufficient quantity is given so that the smaller chickens are not robbed of their share, all are benefited by the exercise. Eager anticipation is said to promote the flow of the digestive juices, thus aiding in the digestion of food.

Variety Essential.

Variety in a ration is essential for the following reasons: (1) It renders the food more palatable; (2) it is likely to result in a better supply of the material necessary for growth and for bodily maintenance; (3) there is less danger of injury from overfeeding or from underfeeding the chicks. If chicks are given only one or two kinds of food, they are likely to become repelled by its sameness. No one nor two foods will supply all the materials needed.

Variety in a ration may be defined as the result of an effort to furnish all the necessary materials and conditions of food. For example; Chicks fed altogether on corn products would be given an excess of fat-forming materials, or carbohydrates, and would receive very little of the food elements required for the formation of bone, muscle and

feathers; on the other hand, chicks fed entirely on beef scrap would receive an excess of muscle-forming material, or protein, with too little of the food elements necessary for the production of fat, heat, and energy. In either case the chicks would be insufficiently nourished, even if they were given all they could eat. A combination of these foods would be more satisfactory, though the ration might still be lacking in bulk. In order to overcome this deficiency, some bulky food, such as bran or alfalfa meal, might be added. Either or both of the last mentioned foods would not make a particularly appetizing mash, and therefore, corn meal, and perhaps wheat middlings, should be supplied to render the ground food more tempting; and some bone meal should be added to make up the deficiency in ash. Chicks would tire of corn alone as a cracked grain, and so it should be mixed with wheat and perhaps with hulled oats. This ration would still be very dry and somewhat concentrated, and therefore green food should be supplied.

Such a combination of materials as described would make a good variety of palatable foods, and not a large amount of any one food would be eaten. If there were not enough of one food there would probably be plenty of another, and the chicks would not become too hungry. If they did not have all the mash they could eat, and the lack were made up with cracked grain, they would not become cloyed with concentrated foods.

Changes in Ration.

Whenever it is desired to change from one food to another, the change should be gradual. To the original ration a little of the new food should be added, the proportion being increased at each feeding time until the change of ration will have been accomplished. If the new ration is a suitable one, the gradual change is likely to prevent any digestive trouble, which might otherwise occur. In case it is desired to give the chicks some concentrated food that they particularly like, such as green cut bone, only a very small quantity should be given at first, the amount being increased by slow degrees until the chicks are receiving as much of the food as it is advisable to give them.

As chicks grow older, the number of feedings should be decreased. The number should not be dropped at once from five to three, but should be changed first from five to four, then from four to three, chicks in confinement being given for a day or two a little chopped onion or other well-liked food at the usual feeding time. This attention will prevent restlessness, and may avert serious trouble and loss from crowding, toe-pecking or other disturbance.

Constant Supply of Clean Water.

Fowls seem to crave a large quantity of moisture, especially when eating dry food or rations rich in protein. Serious results may follow if this moisture is not obtainable. It is often observed that when

hens are deprived of their water supply for even a short time, the subsequent loss in egg production is marked. The apparent effect of the growth of the chicks is not so immediate, but when once their water fountain becomes dry they will show their discomfort by constant efforts to drink. Chicks left too long in an incubator seem to suffer greatly from thirst. The water supply should be fresh, clean and constant, and should be furnished in vessels that will not allow the down of the chicks to become too wet. Drinking water may be supplemented, but not superceded by skimmed milk.

The fountain should be large enough to contain at least a half-day's supply of water, sufficiently light to be handled easily, strong enough to be durable, of such a form that it may be washed and scalded without difficulty and will be easy to fill, large enough to enable a considerable number of chicks to drink at the same time, and shaped so that the chicks cannot perch on it and foul the water. A serviceable drinking fountain may be made from a tomato can and pie tin. The tin should be large enough so that the space between its edge and the side of the can will permit the chicks to drink with ease. The open end of the can should be unsoldered and three or four notches cut in the edge, the notches being a little shorter than the depth of the pie tin. The can may then be filled, covered tightly with the pie tin, and reversed. The water will rise in the tin to the height of the top of the notches.

Access to Fresh Earth.

Chicks appear to obtain from fresh earth something necessary to health, and they should be supplied with some fresh soil soon after they are removed from the incubator. Sand or dry earth does not satisfy the need. Fresh sod, a chickweed or a lettuce plant with a handful of soil on the roots, gives the right combination, supplying green food and earth and tempting the chicks to activity.

Exercise Necessary.

Healthy chicks in small pens and properly fed will grow very rapidly for the first week or ten days, but will of course get little exercise. They usually become restless at this age and appear anxious to get out of the brooder. If after two weeks they are removed to a larger run, it will be found that they are much weaker and less active than others of the same age that have been similarly fed but have had wider range. In most cases, the subsequent mortality is considerably higher in flocks that have been confined in small pens.

When chicks are hatched early in the season it is often impossible to give them an outdoor run. An incentive to exercise must then be supplied. Cracked grain scattered in litter, a sod, a chickweed or some other green plant, or a block of sprouted oats will keep the chicks busy for some time unless they are having other foods in too great quantity. A small amount of onion or of fresh, lean meat, chopped

fine, will be scrambled after and fought for as long as a scrap remains.

Chicks kept in small yards, if allowed to become idle, are likely to develop bad habits, such as pecking one another's toes, pulling feathers, or crowding. Unless something is otherwise materially wrong, any tendency to these vices may be broken up by attracting the attention of the chicks in another direction and by keeping them occupied. If the tendency is allowed to become a habit, however, it will be hard to overcome. Active, busy, properly fed chicks do not ordinarily acquire bad habits, although they may crowd if the brooder is not opened early in the morning; and in their efforts to get out, there is danger that some may be trampled to death.



A healthy looking baby duckling.

Constant Care Important

The rapid development of young chickens renders constant care and watchfulness of the utmost importance. Any slight appearance of discomfort or of drooping may be the first indication of a condition that will prove a menace to the flock. It is never safe to wait long for development; the cause of the wrong condition should be sought and remedied immediately—tomorrow may be too late to save the flock.

By careful observation from the beginning, the person who feeds the chicks may learn to know them and will be able to detect at once a change in their condition that the casual observer would never see. For instance, carelessness in feeding may induce a light digestive disorder. If the condition is observed at once, the evil may be corrected, while continued carelessness will cause serious loss to the owner. Persistent care and watchfulness will very often prevent trouble and loss. The removal of damp litter will obviate a menace to every chick in the brooder, as one of the common molds, *aspergillus*, adapts itself readily to the membrane lining the air passage and air sacs of the chicks, sometimes causing high mortality.

It cannot be too strongly emphasized that untiring care is absolutely essential to the success of any method of chick feeding. Young chicken are very small creatures and the loss of a few may seem a trifling matter; but in a flock of fifty, one chick is two per cent of the flock. Any method of feeding is expensive if it permits a high mortality. Vigilance will often greatly reduce mortality.

CHAPTER THREE



TOE PICKING AND CANNIBALISM IN CHICKS

Cannibalism, Started By Toe Picking, Is Practically Incurable—Existing in Most Cases Among Leghorn Chicks, This Fearful Habit Is Generally Caused By Crowded Quarters or Improper Diet—Feather Picking a Kindred Evil—Experiences of Breeders With Cannibalism and Their Treatments of Habit.

By Campbell L. Cory.

Unusual as it may seem, chickens, especially small chicks, sometimes turn cannibal, and start eating one another, simply craving the taste of blood when once a taste is had. This habit is what many breeders term "Cannibalism." Each year, especially during the hatching season, we receive reports from poultrymen who have had experience with cannibalism, much to their sorrow. It is a serious habit to have any birds in your flock contract for the habit is practically incurable, and in some instances I know of breeders who have been forced out of the poultry business because of cannibalism among their birds.

Feather picking among the older birds, and toe picking among the chicks, are kindred evils. A "feather picker" in your flock is, in a certain sense, a cannibal. This "feather picker" craves the taste of blood. If you notice any of your birds with any pullet feathers, you may know you have a "feather picker." Usually feather picking starts blood on the victim, and this bloody bird becomes the prey of the whole flock. Just one "feather picker" may start the whole flock on cannibalistic tactics.

Toe picking among chicks is another way cannibalism gets started. You have no doubt noticed the first thing baby chicks do when hatched is to pick at one another's toes. Where a chick is thus picked, a red spot is left and sometimes blood is drawn. If one little chick's toe starts to bleed, and the little hungry fellow get a taste of the blood, it is all off.

Causes of Cannibalism

I would naturally attribute the habit of cannibalism to some abnormal condition, such as the lack of some essential element of diet. Close confinement and unbalanced rations are usually the causes of feather picking, and likewise cannibalism. In toe picking however,

the funny part of it is the trouble seems to be inherent so that the chicks of each season naturally get to eating up each other. Cannibalism or toe picking, whichever you desire to call it in chicks, seems to be almost entirely confined to Leghorn chicks, and most generally brooder chicks. In fact I have never heard of the larger breeds contracting the habit.

Of course very young chicks of all varieties will pick at each other for the first few days, and especially at each other's toes. This really doesn't do any harm, unless blood is drawn, or unless the habit is continued until the chicks get larger or old enough for the picking to cause injury. Then the trouble becomes serious and is difficult to overcome. Chicks and growing birds that are given plenty of free range are not so apt to get the cannibalism habit. Some breeders have attributed cannibalism to the lack of animal food, but I understand that chicks, given plenty of animal matter, seem to contract the habit just the same as those that are not.

I know of a breeder, H. J. Blanchard, of Groton, N. Y., whom I understand, was almost forced out of the poultry business at one time because his chicks each year insisted on eating up each other. Mr. Blanchard, so I understand, tried everything he could to stop the vice, but without avail. It was reported to me at one time that chicks had been seen at Mr. Blanchard's place with their legs eaten off clear up to their bodies. However, that was several years ago, and Mr. Blanchard is still in the poultry business on a large scale making a specialty of standard S. C. White Leghorns.

Experience of Mr. Blanchard.

In a letter, dated March 30, 1916, Mr. Blanchard reports his experience with cannibalism:

"I lost hundreds of chicks through cannibalism years ago. I tried all the cures and preventatives I knew, including the feeding of beef scrap, fresh meat, pork rinds, fish, etc., and by giving the chicks playthings in the shape of strips of leather, rubber, broken bits of crockery, or anything that would attract their attention. I also tried putting aloes or tar on the toes of those picked, but nothing seemed of much benefit.

"The trouble finally became unbearable and I gave it considerable study. I found the habit was seldom acquired by small flocks, or larger flocks with plenty of room indoors or out. Large flocks or chicks in cramped quarters with a small yard was where the trouble usually was found. It spread with astonishing rapidity, and when thoroughly learned was almost incurable. The only way to save the life of a chick, whose toes are being picked is to take it away from the flock at once and keep it away. I used to have a brooder to care for these victims by themselves, but if picked badly they didn't amount to much.

"I finally came to the conclusion that the habit is "pure cussedness" developed by idleness and cramped quarters. I found the cure to be

prevention. Give chicks plenty of brooder or house room when very young, and as soon as possible get them outdoors on the grass. Increase the size of the yard with their growth. As soon as safe give them free range, and they will have plenty of room to amuse themselves and plenty to keep their attention away from each other's toes. I also found that dry mash before them at all times in a suitable hopper helps to keep them busy and out of mischief while young."

Buckeye Incubator's Experience.

The Buckeye Incubator Company, Springfield, Ohio, prominent manufacturers of incubators, brooders, hovers and brooder stoves, always hatches thousands of eggs and broods thousands of chicks each spring in testing their various machines, but in all their incubating and brooding operations for years past this company had their first experience with cannibalism in chicks.

Of course this cannibalism at the Buckeye plant was confined to one lot of chicks, and after the officials discovered that this particular lot of chicks had developed cannibalism they experimented with the habit, trying of course at the same time to stop the evil. The officials at the Buckeye plant tried everything imaginable in their efforts to overcome the taste for blood which these chicks had contracted. They fed beef scraps in liberal quantities and even tried feeding raw meat. Each day, too, the bloody chicks were removed, and to the surprise of the officials each day new bloody victims appeared.

In a letter Mr. George Cugley, president of the Buckeye Incubator Company, gave a detailed report of their experience with cannibalism. Mr. Cugley's letter in full follows:

"During the early part of January we made two very satisfactory hatches from some White Leghorn eggs that we procured from a prominent breeder here in Ohio, and the first hatch came off on January 6th; the second on January 13th.

"When the first lot of chicks were about five days old, we noticed that some of them had bleeding feet and an investigation showed that these chicks were picking each other's feet until they bled, and then a number of chicks would continue this picking process until a portion of the toe actually disappeared.

"As soon as we understood the situation we started to remove the chicks that had been picked, fully expecting that the thing had been started by the little toes having been mistaken for a worm or some other food. We were surprised, however, to find that there were new victims every day, and in spite of everything we could do we were unable to stop it.

Even Tried Raw Meat.

"We tried feeding beef scraps in liberal quantities; then we tried raw meat, but neither had any effect. We also hung green food from the ceiling in order to attract the attention of the chicks from the floor, and finally, hung sheep plucks on the ceiling, and we not only

did not succeed in stopping it, but by the time the chicks got to be three weeks old, they were picking holes in each other's backs just as though they had a craving for the taste of blood.

"The writer has had a pretty wide experience with chickens and yet had never come in contact with anything of this kind, but upon making inquiry from some of the old experienced breeders, we find that this trouble has not been of unfrequent occurrence, and has been termed "Cannibalism" by some of the breeders who have been affected with it. Through our inquiries we heard of one case where one of our most prominent Leghorn breeders, who had won scores of prizes at the largest shows in the country, was compelled to dispose of every bird he had on account of this trouble. We understand that his birds literally ate each other up, and he was compelled to start right at the bottom and build a new string because his old stock seemed to inherit this trait from one generation to the other.

"We kept some of these chicks until they were two months old before disposing of them, and right up to the last day they continued their cannibalistic tendencies. We understand that this disease, if it should be so called, is more likely to occur in the lighter breeds than in the heavier breeds. As a matter of fact, all of the cases we could locate were confined to Leghorns and Minorcas.

"We are enclosing a letter from Mr. Charles Heigl, of Rocky River, O., which is rather interesting.

Chas. Heigl's Experience.

We are also publishing in this connection the letter from Chas. Heigl, proprietor of Heigl's Poultry Farm, Rocky River, Ohio, which Mr. Cugley mentions in his letter, and in which Mr. Heigl also gives his experience with cannibalism. From his letter Mr. Heigl evidently caught the chicks just as they got started on cannibalism and by quick action checked the habit. Mr. Heigl gives some valuable information on this subject in his letter which follows:

"Am very sorry to hear that your chicks have started toe picking.

"I had this trouble last year with one flock under a brooder stove. I caught them as they started. I took the chick, kept it away from the others, and in a few days it would be all right to put it back again. I was told to increase the litter, which was lake sand. I believe that it helped some, and I also split the flock in two so they had more room.

"Perhaps you have noticed as soon as a bunch of baby chicks are hatched about the first thing they do is to pick at one another's toe. If the little chicks is not quick to move, it will leave a red spot, and the whole flock will pick at that spot and naturally start it to bleed. Once these little rascals see blood they are all at it.

"Would advise the feeding of the chick food in litter and see that they have plenty of it, also a little sprouted oats, and once a day would feed them a dry mash with a little beef scraps in it.

"Remove a weakling as soon as you see one, as they are the ones that are the cause as a rule."

Chickens Turn Cannibal.

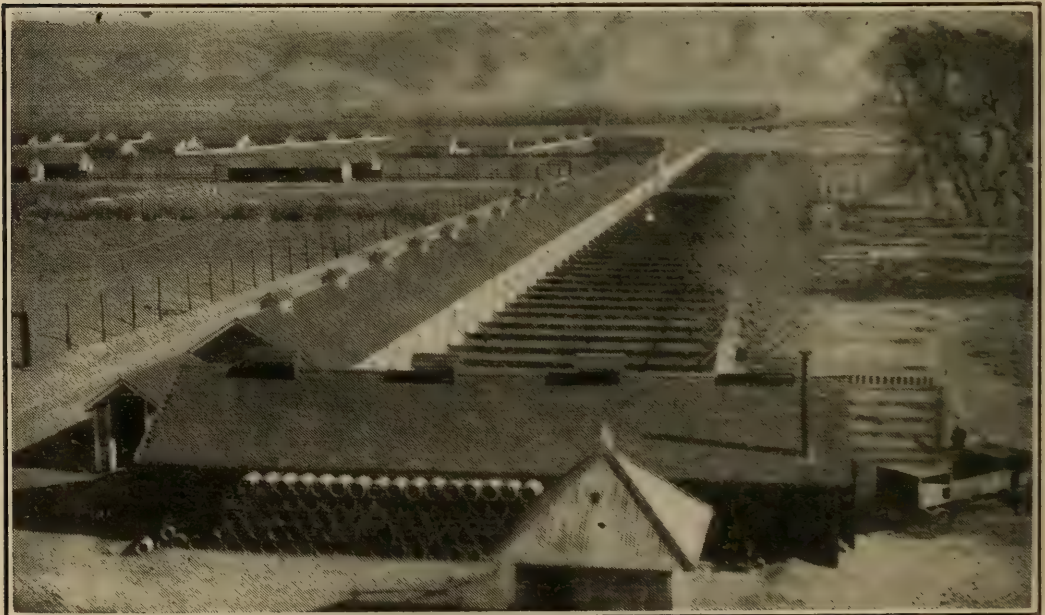
The Colorado Agricultural College, in a recent report, publishes the following on cannibalism:

"Did your chickens ever turn cannibal? Many a poultryman has discovered old biddy denuded of feathers and was at a loss to account for her sudden lack of modesty. The feathers were pulled out by her pen mates, and often the pin feathers were picked out as fast as they appeared. When this vice becomes established, chickens will go so far as to pick holes in one another, and woe unto the bird on whose body the blood is once started!

"Toe picking is a kindred evil, but only among young chicks. They like the taste of blood and an injured toe is a source of attraction.

"Close confinement and unbalanced rations are the usual causes of such vices. Both grown fowls and young chicks need green food, meat food and grit, and if these are provided, along with plenty of exercise, the conditions favorable for the formation of the above habits will not be present.

"The best plan is to kill the confirmed feather pullers that go wild at the sight and taste of blood. In flocks kept under close confinement, the male birds are liable to have their neck feathers pulled. It will be found beneficial to rub the naked necks of such victims with carbolated vaseline."



"The Big Mother"

This immense Brooder House at a California poultry farm is one-eighth mile long. It accommodates 20,000 chicks and makes them more comfortable than 1,700 mother hens.

CHAPTER FOUR



MATURING THE CHICKS PROPERLY

**Breed from Strong, Rugged Parent Stock—Proper Feeding Necessary
—Special Attention Given During Hot Weather—Provide Sufficient Room and Adequate Ventilation in Roosting Quarters.**

By W. R. Petty.

April and May are the great months for chickens—the months in which the foundation of our next season's layers and prize-winners is built. Frequently, however, on account of the backwardness of the season, May and June are the months in which an unusually large number will be hatched. To make up for a part of this lost time it will be necessary to keep the little "peeps" growing from the time they receive their first feed till they are fully matured if we are to have good layers in the fall and winter, and birds sufficiently developed to enter the shows and win for their owners.

Regardless of how well one cares for his chicks, it is almost impossible to make favorable progress with them unless they have been properly bred from strong, rugged parent stock. Through the breeding stock we build either for strength or weakness in the progeny. Start with a foundation of strength and it can almost be depended upon to come out in the chick. It is with chicks from this kind that can be made to reach maturity at an early age.

Commercial Feeds Better.

Assuming the chicks are what they should be, the feeding of them is a simple



This illustration shows a pure bred White Wyandotte female, which variety is very popular.

and easy matter. There are a number of good chick foods on the market, and these are so much better than any preparation we can make up that we feed commercial foods till the chicks are six or eight weeks old.

We start by feeding dry bread crumbs slightly moistened with sweet milk and this is fed five or six times a day till the chicks are a week old, then we gradually change to chick food to which about 10 per cent steel cut oats is added, next, put a small box or hopper of a mixture of meals inside the brooder for the chicks to eat as they choose.

They eat quite a good deal of it, and these small boxes or hoppers may need to be refilled a second time during the day. We would warn the novice in chick-growing to beware of chick foods that carry a heavy proportion of cracked corn. Corn seems to be a heavy food for the little fellows, for it contains too much fat forming elements for their delicate digestion, and they will not eat much of it if there is other food at hand.

Oats for Growth.

Oats is one of the very best of foods to make good growth in our chicks. Oat meats contain the best nutriment for making bone, muscle and flesh—not fat, but the strong flesh-fibres which make muscle. Give the babies good food if you want them to grow and thrive—and you do want them to thrive and grow if you want them to do good laying next fall and winter, and to win the “blue” for you.

If you skimp and save on the food, you have only yourself to blame if they make a poor growth through the summer. In growing the chicks we are foundation-laying, and it is up to us to see to it that a good foundation is laid.

By the time the chicks are six or eight weeks of age they are put in little colony coops size 6x6 feet. They then range a good deal, are out of doors all day long, and it is at this time that grains and a mash are kept before them all the time.

The grains are made up of equal parts of wheat, oats and cracked corn, while the mash is composed of two parts good bran; three parts corn meal; and two parts middlings; one part linseed meal; one part beef scrap (sifted); three-fourths part fine charcoal and one-fourth part salt.

The hoppers in which these foods are fed are made double, one side for the mash and the other side for the mixed grains, and are large enough to hold a week's supply for 50 chicks. We do not wait a week before we refill the hoppers, however, for we look into them every day or two and if any are getting low they are filled.

Green Food Provided.

Green food of some kind must be provided the little fellows, if they cannot be gotten out onto tender growing grass; if they can have a grass run they will take care of the green-food problem. When a

grass run is not available chop up an onion for them once a day or a piece of raw potato.

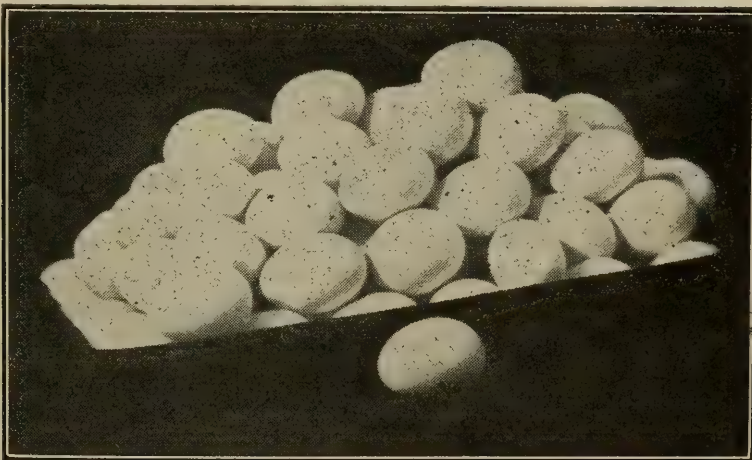
Fresh water is given daily, and chick grit and granulated bone are kept in hoppers before them from the start.

Occasionally we feed boiled wheat at noon which we find to be a good developer and the chicks relish it very much.

During the hot sultry days of summer some kind of shade must be provided. If natural shade is not accessible to the chicks, a very good substitute can be made for them by planting sunflowers, Lima beans or a small patch of field corn.

Too much stress can not be made against over-crowding the chicks at night. More chicks are stunted in this way than the average poultryman thinks, and is to be guarded against during the developing period. No amount of careful nursing in other respects can possibly offset the damage done to the youngsters when allowed to occupy coops of insufficient size that are inadequately ventilated. To obtain maximum results it is absolutely necessary to provide roomy quarters with an abundance of fresh air, then the food that is taken into the little chaps' bodies will do them some good. It goes without saying that the coops should be clean and sanitary at all times, and this is accomplished best by cleaning them out frequently, opening them up and letting the sun shine in, and disinfecting them once every week or ten days. It is with chicks that are thus cared for that we can depend on filling the egg basket next winter, to win in the show room, or command a premium on the market.

With this system of feeding and care we have grown pullets that commenced to lay when $5\frac{1}{2}$ months old, and it is not uncommon to have cockerels weigh from $7\frac{1}{2}$ to 8 pounds when six months old. This last season we exceeded our records by producing a cockerel when only 5 months and 3 weeks of age weighed exactly 8 pounds.



This illustration shows a basket full of White Minorca eggs. Notice the large size and how pure white they are. Minorcas are noted for their large size eggs.

CHAPTER FIVE



SUGGESTIONS ON CARE OF CHICKS DURING SUMMER TIME

Close Attention Necessary to Obtain Best Results—Must Be Fed and Watered Regularly and Guarded Against Many Ailments of Growing Fowls—Mites and Lice Worst Enemies.

Now, every flock of young chicks should regularly throughout the growing season be carefully guarded against certain enemies that are bound to attack it at this time, and I want to speak about a few of these matters in this chapter.

We will assume that the chicks are provided with proper ventilation; that they have sufficient land to roam over and that they have constantly before them a sufficient amount of nourishing, well-balanced rations.

Fresh Water Essential.

The first essential thing in addition to these necessities is that the chicks should be guarded against thirst.

I have seen flocks where all of the above essentials were present to the perfect satisfaction of the chicks, viz.: They were properly housed, had plenty of free range, plenty of fresh air to breathe and more than enough food, but where it was evident at the first glance that all were suffering for a drink if given the opportunity, and fortunately chicks do not and cannot injure themselves drinking too much. It is, therefore, the first essential that pure water be kept before a flock at all times. One of the worst things to do is to neglect to water at a proper time and then compel the chicks to get all their liquid for 24 hours at perhaps the end of the day. A chick should always know where the water is and should always be able to get it, and if it is not provided it will suffer greatly for lack of it. A very excellent method of providing water on range is to attach to a butter tub an automatic device, which is sold by all supply dealers, whereby the water is syphoned out of the tub into the small receptacle and is constantly supplied as needed. A board or cover may be placed over the tub and this will keep the water clean and cool, but whatever method is used, water must be provided in plenty.

Lice.

Perhaps the greatest enemy to growing chicks is the presence

of lice. Chapter after chapter has been repeatedly written on this subject and even the various beginners must know by this time that in order to insure a quick, steady and healthy growth vermin must be kept off his fowls; colony houses must be regularly sprayed; chicks must be dusted. They must be provided with places where they can dust themselves and every precaution must be taken to keep these enemies off the youngsters. If this is not done puny, weakly, ill-looking and ill-feathered chicks will be found in plenty.

Worms.

Another one of the enemies of growing chicks and one whose presence does not seem to be realized as it should is worms.

I have been astounded to find that comparatively few poultrymen regularly treat their young flocks for worms. The breeder does not seem to understand why a number of his chicks do not feather out as they should; look pale in the faces and do not have the energy that they ought to display. Any breeder of live stock knows that he must keep worms away from his cattle and hogs and regularly treats them for these pests, but few poultry breeders seem to realize that chickens are subject to worms at all and do not take any steps whatever to rid their flocks of them. At least three times each season all flocks of young chicks should be treated for worms and the benefits of so doing will clearly show themselves after these treatments.

Treatment for Worms.

There are several ways of treating the chicks for these worms. One is to feed alone or in wet mash an abundance of fine-ground garlic and after this has been fed for a few days to follow with a dose of epsom salts. Another method and one somewhat easier is to give doses of worm powders such as are used for hogs or horses. This treatment will be found effectual and is as good as any other.

The use of turpentine fed with some material to which it will cling is also good. The turpentine is used in connection with chopped meat, liver or other material which the chickens will greedily devour. Detailed instructions if required for the use of these remedies can be obtained by anyone by applications to their experiment station and no one should endeavor to mature a flock of chicks in any season without resorting to worming his chicks at regular intervals.

Lack of Green Food.

Another thing that retards the proper development of a flock of chicks is the lack of green food.

Ordinarily young chicks are raised on free range, and if such be the case they will generally provide themselves with all the green food they require and the amount that each chick will consume in a day is certainly astonishing.

A number of flocks are raised in confinement yards, and if this

is the case they will very soon either entirely destroy or else render unpalatable every bit of green growth in these enclosures. Under such circumstances it is absolutely essential to provide an adequate amount of succulent greens.

Feed Plenty of Greens.

They cannot be overfed in this respect and it is the duty, therefore, of every raiser to see that his chicks get the opportunity to consume daily and regularly the amount of green vegetable matter that their systems require. A very little work on the outside of the runs will supply plenty of this green food. A lot of it will come from over ripe or over grown garden truck. Fresh lawn clippings will supply these wants in many cases, but whatever be the source of supply it must be regular and abundant or the flock will show ill effects of lack of green food.

There is nothing new, strange, startling or peculiar about the matters referred to in this chapter and yet as often as they have been spoken of I find that in many yards and with many breeders they are neglected, and I also find that regularity in the doing of all of these things is almost as important as the doing of them at all. There is no use in watering chicks one day and forgetting it the next. There is very little benefit in keeping the yards full of green food for two or three days and then forgetting it for a week. No permanent benefits will result from looking after the lice in June, but failing to do so in July, August and September. Chickens must be raised in a methodical, regular and consistent manner in order to have them reach that maturity of which they are capable, and any one who is apt to be called away from his duties with the chicks or is not regular in his habits or painstaking and conscientious in what he does had better not start in the chicken business.

I will admit that the task of powdering a considerable flock of chicks is not a pleasant one. There is nothing exhilarating or exciting about it. The "chore" of carrying water, of cleaning the water basins, of regularly filling the dry mash hoppers and, indeed, of spraying the coops are none of them as pleasant or as easy as sitting on the front piazza in the cool breezes, but their irksomeness and monotony are always relieved by the thought that they are the things which will benefit the birds and the things which are essential and necessary to be done in order to achieve any success and, therefore, as every poultry breeder and raiser is anxious to turn out the best flock that he can he will forget the unpleasant things that he has to do when he finally sees his big rugged, well developed flock in the fall.



CHAPTER SIX



SUCCESS WITH WHITE LEGHORN CHICKS

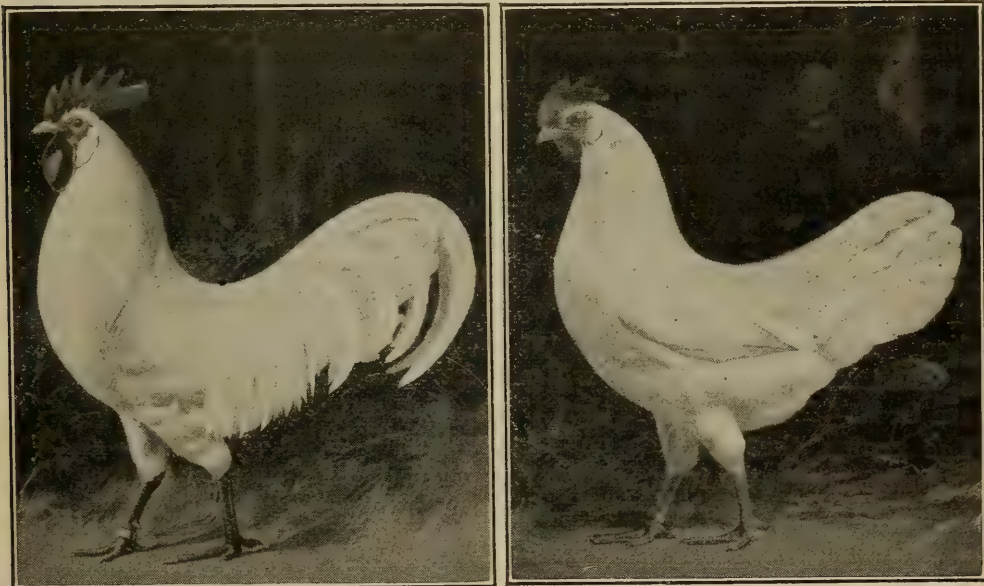
By S. J. Schenk, Manager Puritas Springs Poultry Farm, Route 2, Berea, Ohio.

A day or two before your chicks hatch get your brooder ready. Get the temperature up to about 95 degrees. This temperature should be right above the chicks backs. If the chicks move close up against the stove you will then know that the temperature is too low. If the chicks move too far away from the stove you will then know that the temperature is too high.

Have fresh air in your brooder house but be careful that there is no draught on the chicks. It is best to place hardware cloth around the brooder stove so that chicks cannot stray too far away from the stove and get chilled. After the chicks are two days old they will then know where to find warmth then take hardware cloth away and let the chicks have the whole space of the brooder house.

Giving Chicks First Feed

A chick should not be fed until 24 to 72 hours old, the first food should consist of a mixture of one part bran and two parts rolled oats by weight. Mix together and feed dry. Feed this mixture on a



A typey S. C. White Leghorn Male and Female, one of the most popular varieties in the United States today.

board or boards big enough to accommodate all the chicks at one time.

A few hours before you feed the chicks for the first time place water before them in chick founts, also chick size grit or sand and fine charcoal in separate boxes. Chicks will drink much water and eat a lot of the grit and charcoal which will do them good.

Lay the boards on the floor and scatter this mixture of bran and rolled oats all over the boards. Then tap on the board with your finger. This will draw the chicks' attention and the wise ones will come on the board to investigate the noise. After you have quite a few chicks on the board then walk away slowly and stand a distance away from the feeding board. After you are out of the way most of them will come on the board to see what is there to eat.

After the chicks are on the board 10 minutes take the board away. If some of the chicks do not go on the board at the first meal, let them alone, they will learn to eat when you feed the next time. Feed this same mixture every two or three hours of the day for the first three days. Always take the board away from them after they eat for ten minutes.

If any of the chicks are timid and stand around pick them up gently and place them on the board with the rest of the chicks. They will see them eating and will soon be eating too. Never try to force a chicks to eat, just show them where it is and if they are healthy chicks, bred from healthy stock, they will soon learn how to eat.

Change Feed Third Day

Fresh water should be supplied two or three times a day. After the third day omit the bran and rolled oat mixture and feed the following small grains; two parts wheat cracked chick size, two parts corn cracked chick size and one part pin head oats, by weight, or feed any of the advertised commercial chick feeds. This chick feed consists of grains of a balanced ration cracked chick size. Scatter this grain in finely cut straw or other litter, but never use sawdust, because the chicks will eat it and die. Scatter this chick feed in the litter four times a day. This compels the chicks to exercise, keeps them healthy and prevents leg weakness.

Good judgement should be used so that chicks are not overfed. If there are any grains left in the litter at feeding time then skip that feed and let them eat up clean all the grains that are still in the litter. There is one fault with certain kinds of commercial chick feeds. Some of them contain too many weed seeds and some contain grains that the little chicks will not eat. Some of the standard brands are O. K. You will notice this, if you look in the litter after you feed. The grains, that they do not like, will still be in the litter and you will find no grains in the litter that they do like, unless you are over feeding them. The secret in raising chicks, is always keep them a little bit hungry.

Sprouted Oats Good

Beginning on the third day also feed the chicks sprouted oats. Chicks relish sprouted oats more than any other green food, once a day about noon. Feed all that they will eat or clean up in about 15 minutes. The chicks will not take to sprouted oats the first time you give it to them, but after the first or second time they get it, they will fight for it.

Sprouting oats is very simple. Take boxes, cans or pails. Punch the bottom full of holes with a nail or ice pick. First soak some oats in water over night and in the morning fill the boxes, cans, or pails about three quarters full of these soaked oats. Sprinkle these oats twice every day with water and in about 5 or 7 days you will have oats with sprouts an inch long. This is when to feed it. You can sprout oats without an oat sprouter in any basement or room that holds a temperature of 40 to 60 degrees, although a regular oats sprouter is more convenient.

On the fifth day a growing mash should be placed before the chicks. At this age the chicks have learned to eat and will not eat too much mash. A growing mash, placed before them all the time in hoppers or boxes, keeps the chicks more even in growth. This mash is made as follows: 30 lbs. bran, 20 lbs. middlings, 10 lbs. corn meal and 10 lbs. sifted beef scraps, or you can buy any ready-mixed growing mash such as "Full-O-Pep," Conkeys, or Blatchfords. From now on until the chicks are five weeks old feed the grain three times a day, instead of four times, morning, noon and about two hours before dark.

Never allow chicks to have free range until they are about five weeks old, because, if a rain storm comes up suddenly, the chicks will get confused and they will pile up together outside and drown. Increase the chick run gradually. Keep chicks inside when it is raining. A good idea is to train your chicks to come in the house when you whistle. They will learn it in a few days, if you will always whistle right before you feed them.

Toe Picking Habit

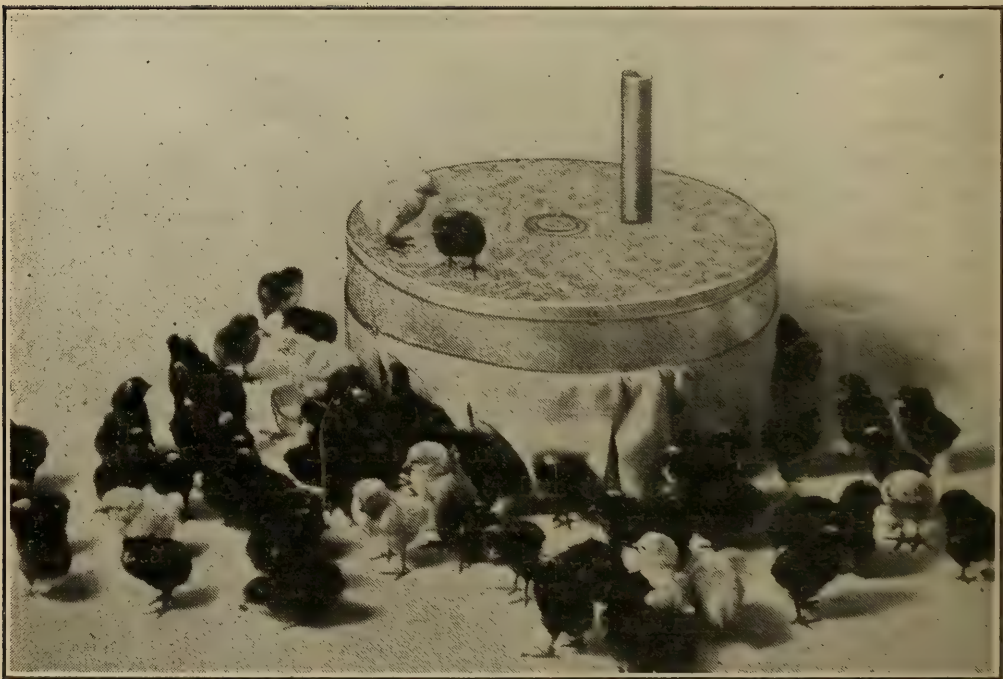
Some times chicks form the habit of toe picking. In this case always remove the chick that is toe picked or else the others will kill it. Put some Zenoleum or carbolated vaseline on the sore part, keep the chick away from the rest and it will soon be alright. After the sore toe is healed, you can then put it back with the rest.

If chicks get in the habit of sleeping in the corner take straw and pile it up high in each corner, and if the chicks still persist in sleeping in the corner let them do so. When the straw is piled up high in each corner they will not injure or smother each other, but be sure and renew straw often. Also spray the brooder house at least once a month. Scald and disinfect the drinking founts about once each week. An ounce of prevention is worth a pound of cure.

Scratch Feed At Five Weeks

After the chicks are 4 or 5 weeks old gradually substitute large grains in the place of the small chick size grains, namely whole wheat, cracked corn and whole oats, or any commercial ready mixed scratch feed. After chicks are two or three months old feed them the same as laying stock. For grain mixture feed them: 100 pounds wheat, 100 pounds cracked corn, and 50 pounds oats. Feed this twice a day in litter about 4 to 6 inches deep. Feed little in morning and feed all that they will eat about two hours before dark. Also keep a dry mash in open hoppers before them all the time. This mash is made as follows: 300 pounds bran, 200 pounds middlings, 200 pounds corn meal, 200 pounds ground oats, 200 pounds beef scraps, 50 pounds charcoal and 11 pounds table salt.

Keep oyster shells grit and charcoal before the stock all the time. Also feed sprouted oats every day about noon, all the stock will eat up clean in about 30 minutes.



The Home Hover

An ideal hover for baby chicks manufacturer by The Prairie State Incubator Co.,
122 Main St., Homer City, Penna.

CHAPTER SEVEN



RAISING BROWN LEGHORN CHICKS

By H. V. Tormohlen, Portland, Indiana, Originator Famous Everlay Strain Single Comb Brown Leghorns.

Of all the pleasant tasks connected with raising and keeping Brown Leghorns, that of caring for the newly hatched chicks is the most pleasant. In fact the whole year starts with that eventful time and everything dates from hatching time. And of all the different varieties of chickens, it seems to me the Brown Leghorn chicks are the easiest to care for and raise. Possibly it is because they are so hardy, and they are, because they are so near like nature's own fowl. They, of all the varieties of Standard bred poultry, approach the old jungle fowl the nearest. Indeed Artist Arthur Schilling, who has made a study of the matter and Frank Platt, editor and author, both declare the markings are most strikingly alike. And so it is that the baby chicks of the Brown Leghorns are the most beautiful of all the chicks in the realm of chickdom. They are so alert, vibrating with life and nervous energy, ever ready to dart under the protecting shelter of old mother's wing or in the grass, or what not, away from the unfriendly hand or hawk or other marauder.

In the first place Brown Leghorn eggs are very fertile, so strongly fertile in fact that the loss through infertile eggs is negligible. And the fertile eggs are so strongly fertile that you can count on most every fertile egg hatching whether you place them under old mother hen or in some good incubator.

A Bushel Of Fun

Of all the fun, of all the delight, that of taking Brown Leghorn



Such S. C. Brown Leghorn chicks as these have made H. V. Tormohlen's Everlay Strain famous.

chicks, so cunning, so active, so coy out from under old mother hen or from the protecting incubator. But it is then that care should be taken to start the chicks off right. So many become impatient and remove the chicks from the nest or incubator too soon. Others make the mistake of handling the chicks too often while the hatch is on. It is well to keep the shells removed from the nest and incubator alike but one should move quick when doing this to prevent the incubator cooling off too suddenly and chilling the chicks and from fretting the old hen until she mashes some of the chicks.

Some like to remove chicks to a basket lined with an old wool blanket and kept near the stove but I feel that the heat is not sufficient and steady enough here to make it safe for these little balls of fluff at this critical time when nature dictates they should remain warm as well as quiet for 36 to 48 hours.

Nature has provided for this period of inactivity by supplying the remaining part of the yolk of the egg which will be found inclosed within the abdomen of the chick for this very purpose and which is absorbed during the first week. So the chick suffers little from a lack of food and underfeeding should be the watchword rather than overfeeding.

How And When To Feed

How and when should I feed is the ever asked question by those unaccustomed to raising chicks. At one time I thought my way was the best, only real way but since that time I have found those who have made a success raising chicks although they violated every rule I thought necessary to follow in bringing up chicks "in the way they should go."

Plenty of warmth, whether in brooder or under hen should be the first watch word. Then try to follow nature's way as near as possible. Nature never provides for the baby quail or other wild fowl whole dry grains to eat. Not at all. The grains found in the spring-time are soft water-soaked particles of protein already beginning to swell with life and ready to sprout. It is these choice morsels that the mother, left to herself, snatches up from under the leaves and deadened grass. So use caution in feeding grains of any kind. Not that the chicks should not soon have grains but the manner in which they are fed. We have found that one of the nicest ways to feed chick grains is to soak them 12 to 24 hours in sour or buttermilk. They are then predigested and even a step better than the grains found out in the leaves and grass.

Conkey's or Blatchfords

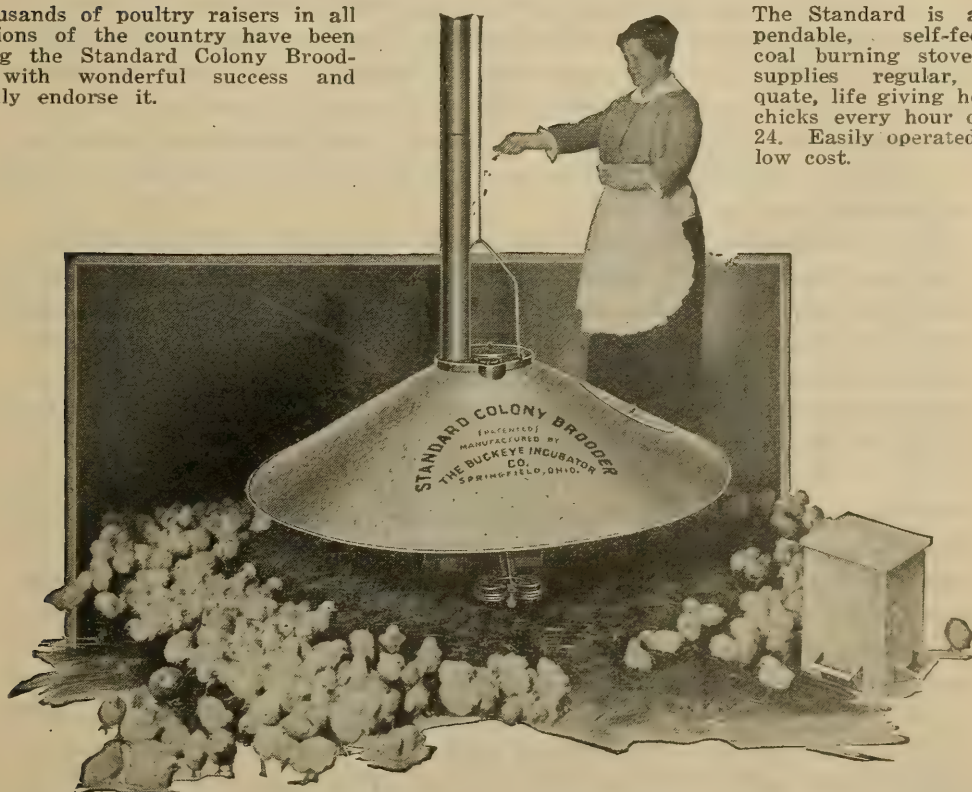
We feed hard-boiled eggs the first day or two crumbled up in sand. We keep a liberal supply of bran and charcoal near-by in a chick hopper. And in another hopper we keep some of Conkey's or Blatchford's chick meal mash. In fact we could not very well raise chicks without one or the other of these two splendid chick feeds. In fact we like

to feed Blatchford's until they are well grown and we believe it is as economical and satisfactory mash as we can find. Feeding a well balanced chick mash like Conkey's or Blatchford's solves many of the problems connected with chicks.

The first week we moisten the mash and feed it moist two or three times a day in addition to keeping a supply of the dry before them. Then at about the end of the first week we begin feeding the soaked chick grain or wheat screening and cracked corn, equal parts to them twice or three times a day. After the third week we make the last feed at night of dry grains, as it is then time to commence to develop the digestive organs for the sterner duty of building up a strong body and husky frame.

We supply sprouted oats for green food when it is too early to turn out on the sod and just as soon as the chicks desire it they have all the liberty they want to roam here and there, in the clover, alfalfa or corn or pasture and with such a variety and such care-free life is it any wonder they grow into Garden winners and world egg record makers?

Thousands of poultry raisers in all sections of the country have been using the Standard Colony Brooder with wonderful success and highly endorse it.



The Standard is a dependable, self-feeding, coal burning stove that supplies regular, adequate, life giving heat to chicks every hour of the 24. Easily operated at a low cost.

You can brood chicks by the hundreds if you use the Standard Colony Brooder, manufactured by the Buckeye Incubator Co., 18 Euclid Ave., Springfield, Ohio, and sold on a strong money-back guarantee.

CHAPTER EIGHT



WHY I LIKE BUFF LEGHORNS

By F. S. Smith, Hamilton, Ohio, President of American Buff
Leghorn Club.

The Single Comb Buff Leghorn, in my estimation, is the greatest of the Leghorn family. In the first place, you can feed five hundred on what you would give three hundred hens of the larger breeds, and they will lay at least seventy-five eggs more in one year than any of the American breeds. But we often hear the market man say: "I can get seventy-five cents for my Rocks on market and can only get fifty cents for the Buff Leghorn." But that is just where he makes a mistake.

Say his Rock hen lays eleven dozens of eggs in a year at an average of 25 cents per dozen, or \$2.75 for the year, and he sells her for 75 cents, getting in all \$3.50 for her and the eggs. Your Buff Leghorn will lay sixteen dozens eggs, at 25 cents per dozen will make you \$4.00 for the eggs and you can sell her for 50 cents, making a total of \$4.50. So you can plainly see you are \$1.00 ahead by having the Buff hen and you can keep her at least 25 cents cheaper, so you make by having the Buff \$1.25.

And remember, it is much easier to sell hens for 50 cents than it is to get 75 cents, or in other words, when you leave the market you have sold out. And I find there is not a nicer, cleaner chicken than the Buff. You can confine them on a city lot and they will always look clean and nice. They are a fine fowl and not coarse, as their meat is gamey, and the Buffs are the greatest layers in the world, especially in the winter, when eggs are high.

How I Raise So Many

I often have fanciers call on me and say: "Smith, how do you raise so many Single Comb Buff Leghorns?" So I will let you, my Buff friends, in on the plan. I start hatching my Buffs in December and get my stock out early. After the chicks are three or four weeks old I let some good farmers have them in lots from 300 to 1,000 to raise on the shares. I receive half he raises the first of October, and in each case I am to have the pick, but I take half of the cockerels and half the pullets. To make a long story short, I get all the best marked birds and leave the culls behind. The farmer in getting the chicks early has plenty of time to give them good care, and when his busy season is on, the Buffs are out of danger and can shift for themselves. That is why my birds are large and strong.

CHAPTER NINE



SECRETS OF SUCCESS IN RAISING MINORCA CHICKS

By Lloyd C. Mishler, Route 7, North Manchester, Ind.

Before entering into the actual raising of Minorca chicks, there are several things I believe it essential to mention in regard to the breeding stock. From an exhibition view point in mating the fowls from which you expect to raise your chicks, care should be taken to counterbalance the faults in one sex as near perfection as possible in the other sex, or a defect of opposite character. To illustrate the latter point, suppose the male has a tendency to have a little white in face. This shows that the breeding for pure white lobe has been carried a little too far, and this male should be mated to hens, which have a little red in earlobes, or dirty colored lobes.

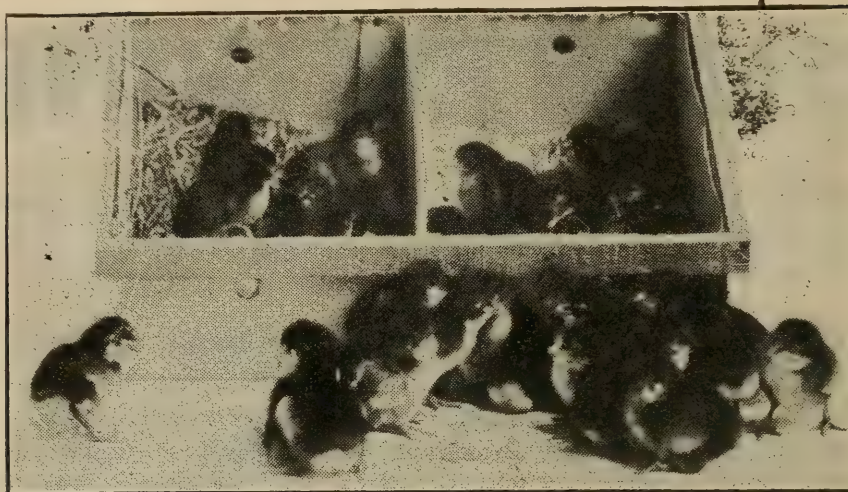
From a utility point of view, care must be taken that the birds in the breeding pen have good Minorca shape, for the Minorca fowl is blessed in having a standard shape requirement of body, which is recognized as an ideal egg type. The pelvic measurement of the females should be good but the test for males on which we place the most dependency is the thinness of pelvic bones at points.

The breeding stock should have had a healthy past, especially in the way of digestion and liver troubles and tuberculosis. I consider these troubles much more serious than a cold. Breeding stock with overgrown combs that cover nostrils should not be used.

Incubator Chicks Strong As Hen Hatched

I do not feed my chicks until they are 60 or 72 hours old. They are however given sour milk or water to drink in the meantime. We usually leave them in a basket or day old chix shipping box until they are at least 24 hours old, if it is necessary that they be removed from under hen or from incubator. I prefer to let them remain in nest or incubator until they are at least 24 hours old. In this connection I will say that I find incubator hatched chicks just as strong and easy to raise, and the pullets make just as good egg records, as the chicks which are hen hatched. Minorca eggs being a little larger than other eggs, and hence the germ of the egg farther from the bottom of tray of incubator and nearer the source of heat, care must be taken not to overheat the eggs in the start when incubator is used.

We use the coal burning brooder hover and find them much more satisfactory than any other method of brooding we have tried and much better than any of the blue flame oil burning heaters which have



A bunch of Mishler's husky Black Minorca chicks ready for shipment. Notice the coloring on these chicks almost black, with a dash of dirty white. But they will feather out pure black with plenty of green sheen.

come on the market the last few years. The coal burning brooder gives much better ventilation, and while they apparently have more labor connected with running them than an oil burner, on account of taking care of ashes and refilling with coal, yet we find the oil burners, after being used a while, give a lot of trouble by smoking at unexpected times, and with no apparent reason. The chimneys crack and cause trouble. It is not safe to trust a bunch of chicks with one of them unless you have an extra chimney on hand ready to use.

Straw Litter Best For Minorca Chicks

We cover the floors of the colony houses with gravel and straw. Clover chaff we find is not good for using on brooder floors for Minorca chicks. The toes of Minorca chicks are usually flesh colored, when young and when dark clover chaff is used there is more trouble with the chicks picking each others toes. This seldom happens when light colored straw is used.

The first week or ten days the chicks feed consists of steel cut oats, finely cracked corn and cracked wheat, the latter two prepared on our own grinder. While many people advocate that there is a danger of over feeding and that the chicks should be fed sparingly yet often our practice is to give the chicks their first feed in the evening, and then place a supply of feed in shallow boxes. From that time on we keep feed before them all the time. When the chicks are about ten days old they are allowed a dry mash composed of finely ground corn and oats, wheat bran, wheat middlings and meat scraps, each one part. This mixture is varied somewhat depending on the different prices of the different articles, and when prices are not too high I usually add one portion of gluten meal and one half part of oil meal. If the latter is high in price at the time, I use it only in the mash of the chicks which are beginning to grow their new feathers.

For green feed we use clipped oats sprouts, or alfalfa meal in

the dry mash. I prefer the former. In place of the meat scraps I really prefer dried buttermilk if I can obtain it.

Plenty of Fresh Air

The chicks have access to the grains at all times and as the chicks grow the grains are left coarser. In cold weather the drinking fountains are placed near the hover so that the water is kept warm. We make no effort to keep the colony house warm all over. In fact, in ordinary winter weather water will freeze in the outer parts of the colony house, as we leave a good sized opening practically all the time. We only want sufficient heat to keep the chicks from crowding.

We believe that too many make the mistake of closing up building too tight and heating the entire building too much. To develop properly, the chicks should be able to get to a cold place when they wish. Usually we allow the chicks to run outside after they are a week or ten days old, no difference how cold it is, or even if there is some snow on the ground. We do not believe in hot-house pampered chicks for breeders.

We usually do not begin special feeding to produce good exhibition color, until the chicks are at least three months old, or some time before they begin getting their adult coat of feathers. From that time we feed nothing but white corn in dry mash and as a grain. Also we place a larger proportion of ground oats in the dry mash after the chicks arrive at broiler age and discontinue the steel cut oats.

Oats Produces Green Sheen

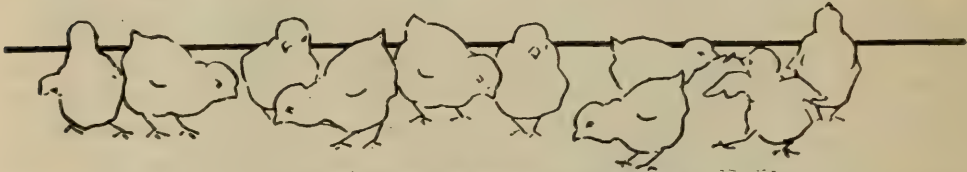
When our special feeding for color of plumage begins we feed the chicks all the soaked oats they want, keeping some of this before them all the time. This may be either whole or ground. Oats is an excellent feed for growth and for producing a good green sheen. A little tincture of iron added to the drinking water is not only healthful but will help carry the black pigment out to the tips of wings so that those feathers will come in black.

Many good birds are spoiled in plumage because of over crowding on roosts or lack of roosts. Plenty of roosts, and I prefer three inch widths for young birds, should be provided. Ventilation without drafts should be provided in the colony houses so that the chicks will not sweat on hot summer nights.

We always like to get our young stock moved into winter quarters early and make a final culling at this time. At broiler age, all males not wanted and any females not showing up properly should be sold. Any fowl not making a steady rapid growth should be weeded out as soon as noticed giving the room to the best fowls.

Owing to our inability to supply the demand for Rose Comb Black Minorcas we have to begin hatching in December and January and continue until July, and our methods must vary somewhat according to the time of year, but we have endeavored to give our methods as followed at the usual hatching time of the year.

CHAPTER TEN



CARE OF ANCONA CHICKS

By E. T. Jacobs, New London Hatchery, New London, Ohio, Formerly
Manager of Hartman Poultry Farm, Columbus, Ohio.

We never move our chicks from incubator under 60 hours. When the chicks begin to hatch we see to getting the hover in shape and properly heated to 95 degrees at outer edge of canopy, as we use colony hovers. We think chicks can adjust themselves to the proper heat they require, as they can move up closer on cold nights and get back if stove should get too warm.

If the wind should raise during the night, the stove is sure to have a better draft and heat always runs up. Too much heat is sure to injure your chicks to a certain extent, as well as letting them get too cold. More chicks are lost through improper brooding than through improper feeding.

No Feed Until 60 Hours Old

After our brooder is properly heated and regulated, we place plenty of fine sand around brooder, and as soon as the chicks are about 60 hours old we place them under the hover. We always do this in the morning. We allow them to scratch and dig in the sand and grit for 3 or 4 hours, then we give them some good baby chick mash (dry). We place this in shallow pans about 4 inches wide and 15 to 18 inches long, and 1 inch deep.

We used one pan to each 30 or 35 chicks and we see that the chicks



The above cut represents a group of Sheppard's Famous Ancona Baby Chicks. This above cut is loaned thru the courtesy of H. Cecil Sheppard, Box 4, Berea, Ohio.

get around the pan to eat. So many chicks do not get the proper amount to eat, when they are raised in large numbers. We see that all have an equal chance for we believe if we get our chicks started right our troubles are practically over.

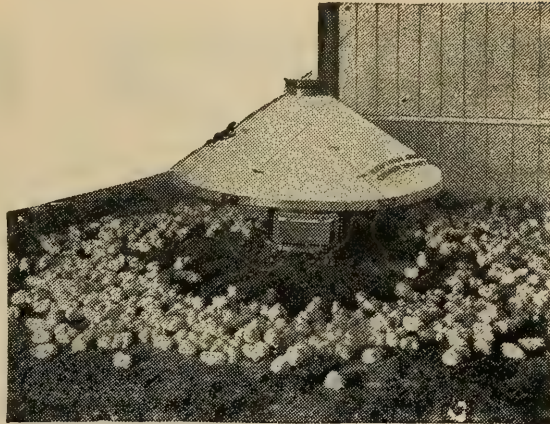
Dry Mash For Four Days

We also place before them plenty of fresh water, sour milk or butter milk in some kind of a vessel so that they can get all they want to drink without getting wet. We keep them on the dry mash ration for 3 or 4 days before allowing them to have any chick scratch feed. Then we begin by giving about one-half scratch feed and one-half dry mash. The scratch feed we scatter in the litter on the brooder floor, keeping dry mash, plenty of clean fresh water or milk and grit before them all the time.

When chicks are 5 to 6 weeks old, we commence to give them coarse chick scratch feed, and when three and one-half months old we give them the same feed as our laying hens.

We always pay strict attention to the sanitary condition of the brooders and pens and see that they are always cleaned and disinfected regularly. It is impossible to raise chicks in brooders or pens that are not kept strictly clean and sanitary.

I raise from 4,000 to 6,000 chicks each year with the best of results under this method of feeding and brooding.

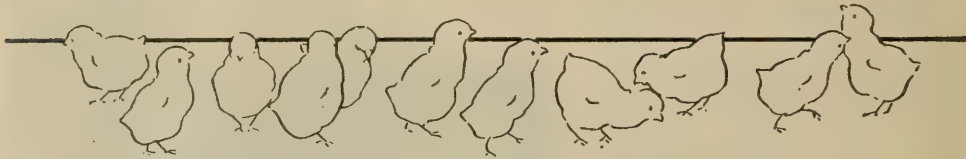


Another type of brooder stove very popular with poultry raisers. Manufactured by the Newtown Giant Incubator Corporation, 35 Warsaw St., Harrisonburg, Va.



A pen of money-making ducklings.

CHAPTER ELEVEN



HOW TO RAISE WHITE ROCK CHICKS

By U. R. Fishel, Hope, Ind.

As we desire newly-hatched chicks to develop fast and mature early into profitable fowls, it is absolutely necessary that from the very beginning they be cared for in a thorough and systematic manner. Inattention and neglect at this period avenge themselves bitterly at the time we expect profitable results. Of course, it is not necessary to go too far with this and overdo it. It is not best to bother about them at all during the first two days of their existence. What they need most at this time is warmth and rest, and the old mother hen knows more about this part of the business than any fancier ever knew. If chicks that are to be raised in a brooder are similarly treated there will be fewer losses.

Nature has provided the young chick with sufficient food to last it during the first two, or even three days of its life. Nearly every poultry breeder knows this, or has at least read about it in the poultry papers, yet there are very few who do not make the mistake of feeding them in spite



The color of White Plymouth Rock chicks varies from a very dark smutty color, almost black sometimes, to pure white, so don't worry about the color of your chicks, for they will feather out white, if pure bred. The above illustration shows some of U. R. Fishel's sturdy electrically hatched chicks.

of the danger connected with it. They are somewhat astonished when, after two or three weeks they see their little chicks standing around as if they were already tired of life. Their little, but over developed wings are dragging on the ground and they are shivering and peeping without enough energy to even feed themselves until they begin to

die off in bunches, and it is found that bowel trouble, produced by forced unnatural feeding, is the cause of it all.

The same thing occurs with human beings. Thousands of babies die on account of malnutrition, produced by the same reckless manner of feeding. As stated above, the yolk which the baby chick absorbs just before leaving the shell, contains sufficient nourishment for two or three days. It contains also enough fluid matter to enable the chick to live without water during this period.

As nearly all water contains some kind of mineral, salts or other matter, it is best to boil it before giving it to the chicks, at least during the first week, after that, buttermilk is a good substitute until they are three weeks old. As an excellent food during the first week or ten days, hard boiled eggs mixed with dry bread crumbs and cracked wheat cannot be beaten. Keep plenty of grit and charcoal before them at all times. It is absolutely necessary that the chicks be protected from rain and draughts and that a good dry place be provided for them, or leg weakness and rheumatism will quickly develop.

The Brooder

The brooder is either a death trap to the little chicks or the making of it possible for you to rear the chicks after they are hatched.

Never buy a cheap brooder, for, why kill your chicks after spending three weeks' time hatching them? Do not keep your chicks too warm. The first few days the temperature in the brooder should be held at one hundred, then gradually lowered, after this until the end of the third week, at about eighty degrees. Use your judgment along this line, for a whole lot depends on outside weather conditions and the place in which you have your brooder.

The one main thing to remember is that more chicks are killed by being kept too warm than by being chilled to death.

Many chicks have been reared successfully without any heat, by the use of fireless brooders, also many have been reared by the placing of a jug of hot water in a box, permitting the chicks to hover around the jug for the heat required. This is proof enough they must have plenty of fresh air and not too much heat.

Baby Chicks

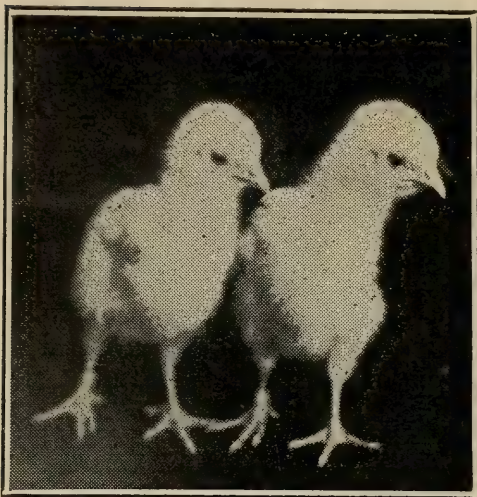
A great many persons much prefer to buy newly hatched or baby chicks, rather than eggs for hatching. To accommodate our customers we are furnishing baby chicks in any number desired. Chicks are sent by parcel post properly boxed in light paper boxes.

On the chick's arrival place in your brooder and feed. Keep charcoal and coarse sand before them at all times, also water—soft or rain water if possible.

As the chicks grow older increase the amount of feed and feed them along the plan described.

Care Of Chicks

It is very hard to lay down a set of rules as to the care of chicks,



A pair of Vitality Chicks that look strong and healthy.

at all times drinking water, soft or rain water being the best.

We feed the chicks nothing for the first two days they are in the brooder, after that feed every hour, but very sparingly. Scatter thin in the sand and litter, making the little fellows learn to work for living. Do not overfeed, for this sure means death to your chicks.

After a few days, or when your chicks are nicely started, you can feed them table scraps or stale bread soaked in milk, in fact, almost anything from the kitchen will be good for them, but remember, grit, charcoal and water must be before them at all times.

After the chicks are a week old we keep before them Blatchford's milk mash. They relish this greatly and it is an excellent feed and one that gives the chicks quick growth.

We keep this mash before our chicks at all times, and after they are fourteen weeks old we also hopper feed them with a grain mixture.

A chick, to thrive and grow out well, wants food where he can get it at any time desired.

We leave our chicks in the brooder house until four or five weeks old, then place them in outdoor brooders until nearly feathered out. From the outdoor brooders we place them in brood coops, where they are kept until they learn to get in out of the rain and there is no danger of their drowning. We then remove them out on the range in colony houses, giving them absolutely free range.

as different locations, climates, seasons, feed, etc., have a great deal to do with the success of rearing incubator chicks.

When the incubator is through hatching we remove the egg trays and leave the chicks in the incubators at least twenty-four hours we remove them to the brooder which we have prepared by covering the floor with a thin layer of sand and some fine cut straw under the hover. We have placed in the brooder a small pan of fine granulated charcoal, also one of chick grit. We also keep before the chicks



CHAPTER TWELVE



RAISING BARRED ROCK CHICKS

By W. D. Holterman, Fancier, Ft. Wayne, Ind.

In writing this brief article I can not go into the subject on general lines, but will confine myself to explaining my own method by which I have succeeded in raising the famous "Aristocrat" Barred Rocks for a period of twenty years. During these years we have gradually eliminated faults which have come to our notice, have tried out new things cautiously, have never had an epidemic or an unusual amount of mortality, and have succeeded in hatching, raising and finishing not only thousands of prize-winners in the leading shows of America but also some of the greatest laying chickens that have ever come before the public.

At the great American Egg Laying Contest (the most noted contest in America) five (5) "Aristocrat" Barred Rock pullets made the following notable official trapnested records for eleven consecutive months: No. 474 laid 262 eggs, No. 482 laid 219 eggs, No. 486 laid 209 eggs, No. 471 laid 201 eggs, No. 481 laid 186 eggs, with an additional 31 eggs not laid in the trapnests, making a total of 1108 eggs for the five birds, or an average of 221-3-5 eggs each for the eleven months. I am mentioning this fact briefly in order to bring home the thought that the very richest show birds can also be the very greatest layers. There is no denying the fact that pure blooded chickens are the ones which produce the greatest amount of clear profit.

The Parent Stock

In our experience we have found that success in hatching

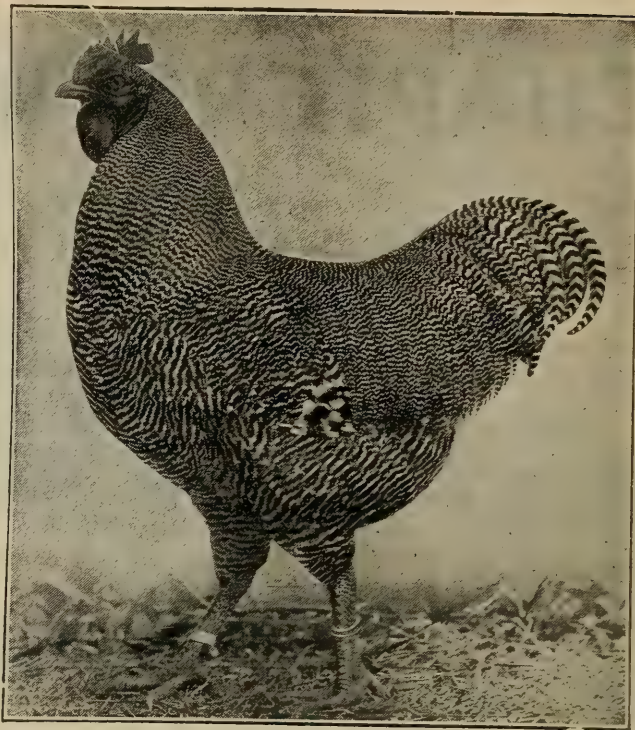


These feathers plucked from an adult exhibition Barred Rock cockerel are noteworthy for the brilliancy of color and the fact that the barring runs from tip to the skin. Barred Rock Chicks when hatched are black and white but should feather out like this.

and rearing "Aristocrat" chicks must begin with the proper parent stock and the right kind of food and quarters for this parent stock. Much, of course, depends on the male. He should be a bird quite fully matured weighing around eight pounds, if he is a cockerel, or nine and one-half pounds if he is a cock bird. Stick close to the above standard weights for such birds will usually prove to be the best producers.

See that the male has strong, well-rounded, masculine head, a head that speaks of vigor and vitality. The head is probably the best indicator as to whether the male will fertilize the eggs strongly or not. Keep him active and scratching for his living during the breeding season. A fat male or a lazy male is no good for breeding.

Equally important is the condition of the females. It is best to keep them exercising practically all day long. The eggs of a fat hen are seldom fertile, or if they do hatch, the chicks will not live. Barred Rocks are inclined to become fat and lazy unless you compel them to get hungry enough so that they will scratch for their grain food.



A typical "Aristocrat" Barred Rock male as bred by Mr. Holterman. Notice the barring, type and size of this wonderful male bird.

The Hatching Eggs

To have the parent breeding stock in superb health during the entire breeding season is of prime importance. But this is not all. Barred Rock eggs can be successfully incubated and hatched all the year round but the best hatching months for the United States and Canada are from January to June inclusive. This means that in many sections the eggs for hatching will be laid during cold weather and they must be protected against becoming chilled. During cold, wintry or blustry days the eggs should be gathered three or four times daily.

Mother Hens Better Than Incubators

We do not hatch any of our "Aristocrat" chicks with incubators. All of them are hatched and raised by mother hens. These remarks, therefore, necessarily will have to be confined to this phase only.

Several days before we intend to actually set the eggs, we make a careful canvass of the broody hens we happen to have on hand, testing them for broodiness. One of the best tests we have found is to place the hand under the hen (without disturbing her unduly) while she is on her nest and if she snuggles down broodily on the hand then it is a pretty good indication that this hen will prove a good setter and hatcher. Then, at night, these hens are removed from their nests and brought to their specially constructed new nests where we want them to do their hatching. This must be done very quietly and gently.

The Hatching Nest

A few words about this special hatching nest. The first and prime requisite is that these nests must be built on the ground—on good old mother earth. This is something we have learned from the hens which used to steal their nests out in the open, under bushes, among weeds, in fence corners, etc., and all at once surprised us by appearing with such a lively bunch of chicks that our heart simply “would laugh with glee.”

The moisture rising steadily and invisibly to the surface of the ground helps the hatching hen and increases the vitality of the chick. The nest itself should be rather flat and only slightly hollowed. In dry weather we cut a large, square piece of sod and turn this upside-down for the bottom of the nest. Of course, over the ground or sod we place some straw, so as to keep the eggs clean during the hatch.

If the nest is built in the open outdoors (as almost all of ours are) then we place some kind of shelter over it to protect it against rain, snow, storms or sun. A so-called “A” coop is good for this purpose or a box about 2 feet long, 2 feet high and 2 feet wide, or anything similar to this. Anything is good which affords protection against weather.

Protection Against Lice

In the straw in the nest we sift some good commercial lice powder as an added protection against lice. Each broody hen is dusted thoroughly with a good lice powder when we place her on her hatching nest and thereafter we dust this hen once a week, not only during the three weeks of the hatch, but until the chicks are weaned. By doing this, as indicated above, it will not be necessary to bother with anything else for keeping the chicks free of lice, and a lot of later troubles are avoided. A hen kept free of lice makes a much more contented and quiet hatcher than one bothered with vermin.

The Three Weeks Of The Hatch

During the period of the hatch, the hen should be looked after at least once a day, given fresh water and feed and a chance to exercise, and at the same time a glance should be given to the condition of the nest. If the nest is soiled, if any egg should be broken, remove the trouble immediately, clean everything and sponge the soiled eggs with lukewarm water.

These little attentions mean better hatches and stronger chicks. Should the hen want to stay off the nest too long so that the eggs would become chilled, she must be placed on the nest gently but firmly. From the time the chicks begin to pip until the hatch is over, we do not bother our hatching hens in the least but let them take care of matters themselves.

Where To Start Chicks

Now, what shall we do when the chicks are hatched? In the first place remove the hen and her brood to the place where you desire to raise them. We place ours under "A" coops, keeping the mother hen penned up and letting the chicks run out at will. It is our aim to so place our "A" coops with their mother hens and little chicks, so that the chicks will not need to be moved to new quarters until they have practically matured. At that time we transfer the chicks to their permanent winter quarters. Changing the chicks from one yard to another or changing their housing when the chicks are only partially mature will usually stunt their growth.

When To Begin Feeding

Of course, when these wee little "mammy babies" begin to peer out upon the world at large from under the downy fluff of the mother hen they look "so cute and so cunning" that we cannot resist the impulse to feed them, for we naturally feel that they must be hungry and need food. But here we must be careful. More chicks probably die the first 10 days of their life on account of being fed too soon

after they are hatched than from any other cause. Wait at least 36 hours after they are hatched before giving them any food, and 48 hours is even better. Yes, even if they should have to be 72 hours old before receiving any food, it is really nothing harmful. So, please, when you see these newly hatched chicks, and even if they should appear as though pleading for food, harden your heart and withhold all the food until they are at least 36 hours old.

Dry Food Only Given Chicks

Our "Aristocrat chicks" receive as their first food hard boiled eggs crumbled fine. This and stale bread crumbs



I doubt whether there has ever appeared in print such a remarkable photograph of Barred Rock feathers. Imagine to yourself such plumage on an exhibition female. Notice the even clean cut barring.

is their sole food for the first few days. For drink we give them clear, fresh water in absolutely clean drinking vessels. Chicks hatched in extremely hot weather should have a little copperas in their drinking water. When the "Aristocrat" chicks are five or six days old they receive a commercial grain ration prepared especially for little chicks and consisting of a variety of grain foods. This is fed in addition to the hard boiled eggs and bread-crumbs.

Gradually egg and bread are eliminated and the grain ration substituted altogether. When the chicks are two to three weeks old we arrange a hopper or trough for them, filling this half full of a high-class commercial mashfood for chicks. This we feed dry. At "Holter's Roost," the home of "Aristocrats," wet mashes for little chicks are tabooed. We don't like them—don't use them. All feeds are fed dry until the chicks are well along in maturity. This plan we have followed now successfully for many years, because previous to that time we had fed the nicest kind of wet mashes, milk mashes, sour milk or buttermilk, making all kinds of experiments and—the mortality was awful. Others may be able to raise their chicks on wet mashes but we cannot.

Feeding Program Changed.

For a period of three months our chicks receive this dry mash in hoppers so that they may help themselves, and they also receive the mixture of grains, at first the chick size, gradually the adult fowl size. After the chicks are three months of age we gradually increase their ration of corn, at first cracked corn, then whole corn. To their dry mash, we add about ten per cent cornmeal. This helps them to put on flesh so that the chicks begin to round out in nice shape.

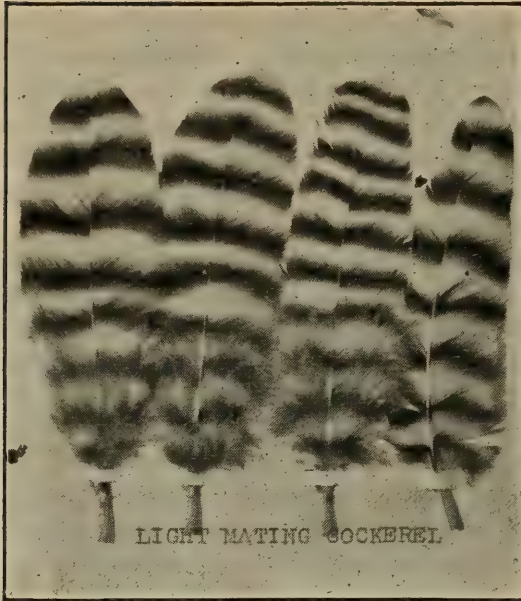
Now we also begin feeding a damp mash not sloppy, not even really wet, but dampened with water or milk. The mixture we use is simply the commercial brand of dry mash food which comes ready mixed and to this we add 15 to 20% of cornmeal. The first weeks we feed this only twice a week, increasing later on to three and four times per week.

Rounding Them Out.

From then on our plan of daily feeding is as follows: Early in the morning our chickens receive the mixture of grains scattered in deep litter so that they must scratch and work for it. At noon, practically every other day, is fed the damp mash mentioned above. From three to five P. M. according to the length of the days, they receive another ration of dry grains to which is added an extra feeding of whole corn. On those days when the damp mash is omitted we scatter instead a small handful of grain for each chicken at noon. It must be borne in mind that dry mash is kept before them all the time so that they may help themselves at will. This ration is kept up until the chickens are mature.

Additional Pointers.

A few other points worth mentioning in connection with raising



There are the Light Barred Rocks and the Dark Barred Rocks, or as some breeders term it "cockerel" matings and "pullet" matings. These feathers from a Light cockerel show the snappy consistent barring, so much admired.

Barred Rock chicks along the above lines are the following:

Absolute cleanliness day after day from the time the eggs are set until the chicks are matured is essential. The mother hens, if they are cooped in coops without floors, should be moved to a fresh piece of ground daily. If their coops are floored then these floors should be cleaned frequently and disinfected. The coops themselves should be whitewashed on the inside.

Avoid crowding. Of course, when chicks are raised with mother hens, the danger of crowding is not so great. One hen can readily take care of a brood of 20 to 25 chicks. However, after the

chicks are weaned and must shift for themselves it is well to be watchful so that over crowding does not occur. Chicks over crowded, even for one night only, and becoming over heated, will be injured for practically their entire lifetime. They will at once show the effects, will be stunted in their growth, their vitality will be greatly impaired so that they are subject to any ailment which may come along. They will never show the richness of color and glossy plumage of a thoroughly healthy fowl. This one point, therefore, should be watched most carefully.

Always have fresh water before them. It is best to give fresh water twice or thrice a day, just as you would cattle and horses. Keep the dishes clean. During the hot summer months drop a little copperas (which is cheap and may be obtained at any drug store) in their drinking water. Just enough to make the water look rusty. This is one of the finest light tonics and, I am sure, wards off disease, such as cholera, etc.

Also keep charcoal before your chicks. Charcoal is a godsend to poultry keepers. It purifies the system, absorbs germs which might cause disease, and tones up the appetite. Furthermore, charcoal is particularly valuable to Barred Rock breeders as it has an effect on Barred Rock plumage, seemingly deepening the color of the dark bar.

If you follow the above instructions, and when cold weather sets in, have your chickens properly housed, there is no question but what you will meet with success.

CHAPTER THIRTEEN



SUCCESS WITH RHODE ISLAND RED CHICKS.

By A. A. Carver, Seville, Ohio.

This has to do with Rhode Island Reds, as they are the only chicks we have anything to do with, for they are our bread and butter.

Without saying anything disparaging about other chicks, we think Red chicks are just a wee bit more rugged and thrifty than any other variety grown under the sun. They are at least making a place for themselves in the sun, and one big reason is because they make a good impression as they emerge from the shell.

The first step to take to produce thrifty baby chicks is in the selection of the birds that lay the eggs that hatch them. We will first select a very snappy male full of pep. No dead head males for us, no matter how beautiful. We prefer a rather fine marked male full of pep, rather than a big coarse male, as the finer marked males breed the best Reds, the big coarse males not only breed coarse, but throw a lot of unfertile eggs, weaklings, etc. Give us a male full of pep, fine marked and medium size, if bred from large stock.

Large Females For Breeders.

Now we go to the females. We want them as large as elephants if we can get them. We like 7 to 8 lb. hens to get the real stuff. We want them typy for the shows and for eggs. Egg records of over 200 eggs per year at least. They must be thrifty and working hard every day in the straw. Must not be fat and lazy. Lazy breeders produce weaklings and too many cripples.

Now the care of the eggs is important. First see if the male bird is mated well. Gather the eggs during cold days at least every hour. Use about 8 hens in a mating for strong chicks. Keep the eggs in a cool but not cold cellar and set them not over a week laid.

Now for the incubation. Our best advice is, if you use an incubator, to follow instruction given with it absolutely. Do not deviate an iota. Thousands of eggs are spoiled every season by "know-it-all" incubator operators, who know more than the instructions given them with their machine.

If you use hens for setting, have a roomy box and make a flat nest using not too much straw as some hens dig down in the center and pile their eggs, thereby crushing them, and especially killing the little chicks when they first begin to hatch.

Keep Chicks Hungry.

If you buy baby chicks from some hatchery place them at once in a box behind some warm stove and feed them a wee bit of boiled eggs and a little bread and milk (stale bread) alternately, being careful to keep them all the time just a little hungry. Also keep clean water before them all the time.

If you have no brooder, slip one or two of the chicks under a setting hen in the dark and next morning if she owns them you can transfer 15 or 20 chicks to her. Or if you have brooders, take the baby chicks direct from the shipping boxes to the brooders, and follow instructions given by the baby chicks shipper.

Use Buttermilk Starting Feed.

Whenever we find a bunch of little chicks not doing well we put them at once on a bread and milk (stale bread and sweet milk) diet and soon have them on their feet. We are having great success with

buttermilk starting feed and there are several good kinds on the market. We use it for the first month, and at the same time keep fine scratch feed in the litter to make them work.

We are using this season the Newtown brooders, one in each of our 8 by 12 Tolman open air houses. Their brooders are fine.

If you can obtain sour milk it is fine to keep before little chicks, only start in slow until they are used to it.

Don't Let Chicks Get Chilled.

There are more baby chicks lost by chilling than any other way, and when your chicks begin to die off after ten days you can usually

Much interest has been manifested in Rhode Island Reds the past few years and the above illustration shows a fine Rose Comb specimen.



lay it to chilling. I dare say half the cases reported as white diarrhea are really caused by chilling. Some old hens, if set in a box where the wind can blow into the front, cannot keep their chicks from chilling no matter how well they hover them. We never allow our chicks to touch the ground until it is quite warm in the spring, for if the little peeps get their feet cold it seems to chill them all through. By all means keep your peeps on dry boards or inside on dry soil until they can run out without getting cold or wet feet.

Small Coops Best for Brooding.

Even after the sun is warm, do not let them out in early dews but feed them inside and wait until the dew is off before letting them out.

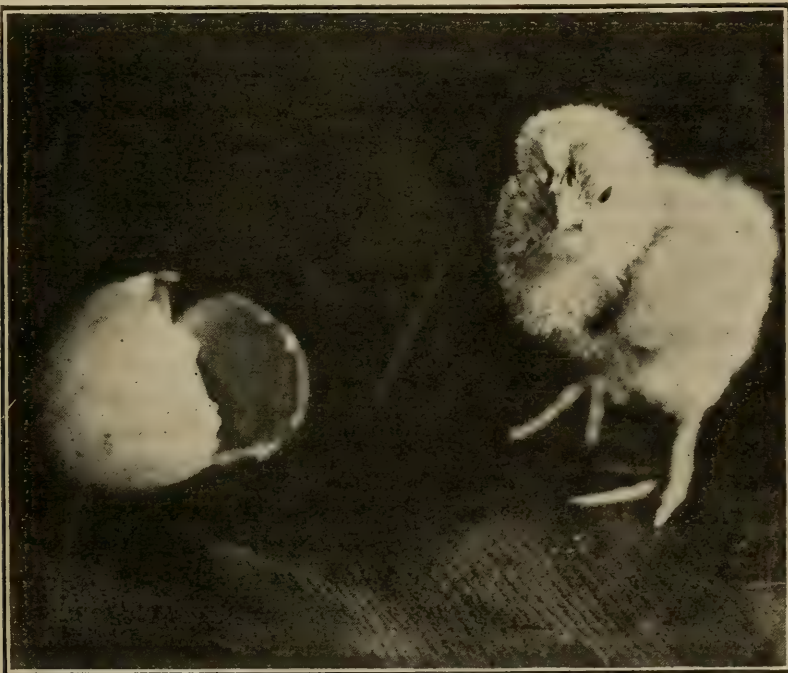
In using hens, we find that small boxes are better than large ones for the first month, as some hens are so restless that they move about all the time and do not hover their young. When you have a hen that will not hover well, place her in a very small coop, where she cannot move about and she will attend to her business of brooding.

When the chicks are a month old we begin to keep before them a dry mash prepared for growing chicks which all feed stores carry, and also use a coarser scratch feed in the straw. Be sure the litter is always clean and not so deep so they can comfortably scratch to the bottom, and see there is plenty of gravel or fine grit on the floor. Also keep dry bran before them all the time after they are a month old.

Everlasting Care First Month.

In conclusion I wish to say the greatest losses from chicks are due to cold. Cold winds blowing in causing them to chill or allowing them to touch ground, in early spring before it is warm enough for a small boy to go barefooted, or improper brooding some way. Over-feeding, underfeeding, lack of exercise may also cause losses.

I dare say that fifty per cent of the cases called white diarrhea are from the above causes which, of course, may bring on W. D. The secret of success with baby chicks is "everlasting care for the first month". Try to put yourself in their place and anticipate their wants. After a month they are usually saved.



Just out—now for a good start in life.

CHAPTER FOURTEEN



ORPINGTON CHICKS EASIEST TO RAISE.

By Captain Ora Overholser, Mechanicsville, Md.

Did you ever stop to think of the "siting hen" proposition from the hen's point of view? It is true we have our arguments by which we justify our attitude in the matter, but I wonder if these arguments would go a great way in convincing the aforesaid hen that we have been exactly square in our treatment of her case.

Poor, little hen; she couldn't help becoming broody if it were to save her life. A reputable physician would diagnose the case before applying treatment, so let us do the same. Perhaps the case will not require such heroic treatment as we have been in the habit of bestowing.

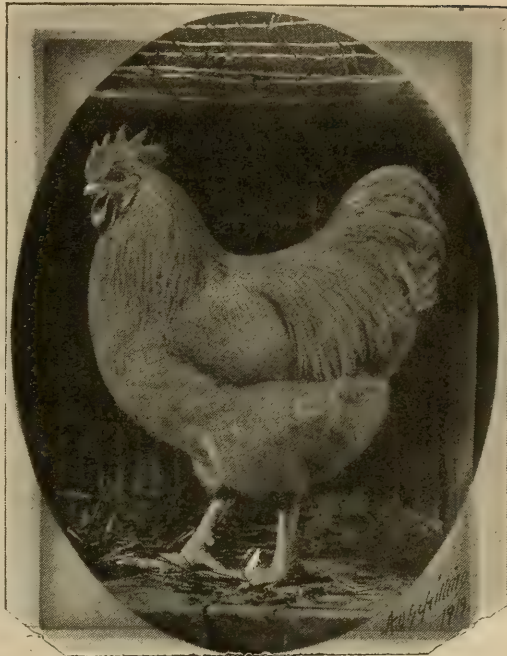
To begin with, nature has provided for the propagation of kind in every living growing thing, and she planted in the nature of the hen an inclination to brood after every clutch of eggs she has laid. In some breeds this inclination is very slight, and a little discouragement will put her off the notion, while other breeds of fowl take the matter more seriously; but once the fever is on and "Biddy" has fully made up her mind to "set" then you have a proposition to deal with.

Early in the season, along about March or April, the clucking hen is welcome, for we are in need of her services to bring forth the early chicks that command the high prices. Then it is that we watch with anxious eye and discerning ear for any indication that she would consider the proposition of sitting tight for twenty-one days on fifteen eggs and safely hatch the downy chicks. She can have anything she wants in the line of "eats" and "drinks" and be treated like a queen in March or April.

Take these same conditions in August, however, and, oh, what a difference in attitude toward the broody hen! We enter the laying house for the purpose of gathering the daily harvest of eggs. We come to a nest where a broody hen is warming several fresh-laid eggs to a temperature of 103 degrees or more. We want those eggs. Biddy says that we can't have them. She gives a warning note as she guards her eggs, and glares at us with baleful eye. We reach our hand toward the eggs—merely a feint on our part to draw her out. It draws, all right, and we narrowly escape a vicious peck in the eye or any other part of our anatomy that did not retreat quick enough.

At just this stage of the game we have decided that we will not be balked in our purpose by any little old sitting hen, so we once more approach with all the brava-do we can muster and seize the offender by the tail, leg or wing as the case may be, and throw her bodily out of the nest and take her treasures away from her.

This same operation will probably be repeated for several days, when it will occur to use to break up that sitting hen. Now, here is where the cruelty comes in. We take the affair more seriously than need be and use enough force to break up a man's home, say nothing of a poor, little six pound hen who is only trying to do her duty.



A prize winning Buff Orpington cockerel belonging to Wm. Cook & Sons, Box 21, Scotch Plains, N. J.

Breaking Up Broody Hens.

One of the favorite modes of torture, and one supposed to be very effective, is to grab the hen by the legs, and souse her in the rain-barrel full of water a half-dozen times or more, and turn her loose; this punishment is to be repeated every time the hen is found brooding on the nest.

Another very effective way is to tie her by one leg to the clothes post in the back yard in the sun and leave her there until she no longer clucks. Still another way is to shut her up in a box, without food or water for several days, and starve her to your way of thinking.

Now, all of these different methods, and several more, may serve to relieve our own feelings in the matter, but what are we doing to relieve the situation? If the hen survives the treatment at all, she is a nervous wreck, thin in flesh, broken in spirit and is going to take weeks to get her back into normal condition.

Now, the simplest and most effective way in the world is the most humane and brings her out of the broody condition in good health, her nerves unshaken and ready to start laying in a few days. Take her from the nest as soon after you discover her broody state as possible, place her in an unoccupied coop or large box, remove any nest or litter that could be made into a nest, supply her with an abundance of good food and fresh water, and leave her to her own meditations for three or four days. If you have several broody hens they can all

be put into the same compartment and treated in this way until broken up.

To my way of thinking no person can successfully rear Orpington chicks until they have learned the lesson of first handling the problems that arise to vex the ordinary poultryman. The handling of the baby chick is full of trials and many occasions arise in which you will be tempted to kick the whole thing over and tell them what your state of mind is. This is in mind while the sitting hen story is written above. The lesson we are striving to bring out and the thing we are trying to teach you is that you can handle the many problems in caring for poultry with an easy hand and after a while the temptations to rush madly away from it all will not be so numerous, eventually they will disappear.

Most Successful Way, The Easiest.

The simplest way to become successful in the rearing of Orpington chicks is to be easy and then your state of mind will be right. Remember the rule for breaking sitting hens and apply the same logic in different words when the little chicks will not go into the brooder at night or during a rain storm, when they will huddle out in a chilly run and get stunted, or when they continually pile up in corners of the house and smother, or when they crowd around the foundations and drown many of those who cannot get out of the water. Remember that in most all cases you are to blame.

To be successful with brooding chicks you must have a liking for the work, you must have ability to note the most minute detail and observe the happiness, state of health and comfort of the chicks.

The baby chicks is half raised when you have in the coop mothering the brood a respectable old hen who has raised several broods and being sure that you have them protected from the elements and the raiders; rats, cats, dogs and hawks, etc.

The incubator chick, those that you brood with artificial means is a constant care and if you will raise many at a lower cost per chick, you must resort to artificial methods. The most frequent mistake is trying to rear them in too large broods. I would advise strongly against having more than 200 in any brood and if so situated I would not have that number for you can well afford to start with a smaller number and raise a greater percentage at a less cost and loss over the large broods and against the relatively larger percentage of loss.

I have tried rearing almost every breed of fowls that are bred; the Plymouth Rocks, the Leghorns, the Minorcas, the Brahmas, the Anconas and the Orpingtons and I have yet to find a hardier and more lusty chick when hatched than the Orpington chick of any color. They are big fluffy things and are ready to demand food almost as soon as you take them from the incubator.

Pointers On Feeding.

Of course you do not feed them until the second day and at this

time you will find all of them clamoring for food and water. You will find that the task of teaching them to eat or drink is not large. Just after you have placed the feed and water where they can reach it just stay around the coop and see what happens; you are not so expert that you will be able to place the food and water just right and then give it not a single other thought. You should remain at hand for some little time so that you may assist in getting them started eating and keeping them from drinking too much water at first; food is the main necessity, yet a lot of the foolish little fellows will drink chilly water until they are unable to drink more and unless you know just what is going on you may come back and find a dozen or more of the finest chicks dead or chilled so that the task of reviving them hard.

Keep your eye on the thermometer and be sure that the temperature does not go too high, rather keep it a little bit cool than run the heat too high. Remember that you are not running this brooder for your own comfort so regulate it so that it is comfortable to the chick and save yourself needless worry and expense. By remaining close at hand, as suggested above, you will be able to assure yourself that all is well before you leave them to their fate.

I firmly believe that Oprington chicks are the easiest chicks of all the breeds to rear. Once started right you will have no cause for worry or complaint for they almost rear themselves.

If you are using the broody hen your troubles will not be so numerous yet it will require a lot of attention to insure their safety.

Use a variety of food in their feeding and you will have no cause for loss of appetite or stunted chicks. Keep looking after the chicks and remove from the lively and fighting youngsters any that may not be getting their share of the food or becoming stunted. Once stunted always a bother and care; they are a disappointment, food does them little good besides keeping them alive, and after they have made away with much costly food, they are almost sure to die or have an accident befall them, so do not allow any backward chicks to remain with those that are more lively.

Plenty of clear, clean, fresh water is the most necessary thing. Provide enough water for all. In the summer time when the water gets warm you should be sure that they have fresh water at all times.

Fight The Lice.

Fight the louse. Once you allow the louse to get the upper hand you are lost; they work while you sleep and before you realize what is wrong your chicks are going backwards and after a while you will notice it, you will wonder "now, what is it?" While you are wondering you are no doubt changing the feed; they grow steadily worse, many die and after awhile you tumble to the louse. He has been getting in his dirty work while you have been content that all was well. Disinfect always. Keep at it. You cannot be too clean in the care of chicks. Every few days inspect several of the little fellows and look for lice. When you are in doubt disinfect.

Get ready to dip the chicks and do not fail to do so often. You have no doubt had experience or at least become familiar with the new method of dipping chicks and fowl. Sodium-floride is the chemical used. It kills lice. It may be used as a dip or in the powdered form.

After the weather becomes warmer and the chicks grown older you should harden the chicks so that in a short time you can have them hover without artificial heat.

If you are rearing your first brood of Orpington chicks and have had experience in rearing other breeds I am sure that you will agree with me that they are the easiest reared and that they are the hardiest chick that you have ever attempted to raise.

After passing thru periods of breeding various breeds of fowls I finally came to the Orpingtons and came to appreciate the virtues of them and now I breed nothing else from a fancy point of view.

While the choice of any special breed of fancy fowls must necessarily be determined very largely by the individual taste of the breeder, the Orpingtons have so many qualities that excell, it would seem that they must continue to be very widely adopted by those who are seeking either aesthetic or commercial qualities in fowls.

An Aristocratic Appearance

There has been produced in them a large size without sacrificing grace of carriage. Indeed, they show an aristocratic appearance that is very marked, and not excelled by any other breed. They are, however, remarkably active, and even sprightly, for birds of such size. They are not so slow or sluggish as the Cochin, while, of course, they are not so vivacious as the Léghorn. That is one of the things that led me to select them. I can easily keep them where I want them—a two foot wire strip will do that—and I can move all around among them without scaring them out of a week's supply of eggs. They seem so friendly! And then their form, I think, is very beautiful; every line of their contour indicates grace as well as dignity—a combination that, I am sure is not found to such an extent in another breed.

One can find splendid coloring on other breeds; not only a beautiful blending of colors, but brilliancy. But I must say there is little to be found that is more beautiful and more brilliant than the green satiny sheen of the Black Orpington. I can stand and gaze at them for a long time and enjoy it, and then go out and gaze still longer. They are like pictures, only finer than painters can make.

Orpingtons are also of value to those who are breeding them for a money consideration. Well-bred birds, that conform to the standard requirements, must always be in demand and will always bring good prices.

And then they are excellent layers. Whatever may be said about the "dual-purpose" cow, breeders have certainly produced the "dual-purpose" hen. And this breed will not be boarders only; they will more than pay for what they get.

CHAPTER FIFTEEN



BROODING AND FEEDING BLACK LANGSHAN CHICKS

By Bernice H. Barrett, Fortville, Ind.

The real secret of raising chickens isn't printed in book form. It is the inborn feeling, the understanding of the little creatures, a real liking for the tiny fellows and an interest so deep in their well being, that you do not hesitate to crawl out of bed in the darkest hours of night or wade out in any kind of a storm to care for them, if needs be. If you haven't this feeling for little and big of the chicken family, you might just as well not try to raise baby chicks.

Another thing to be considered before trying to raise chicks is the condition of the parent birds. If they are what they should be in health and vitality, your battle is half won before the chicks are hatched.

Suppose you have a full working knowledge of your own individual hatching system and you come to that most interesting time—taking the baby chicks out of the nest or incubator which ever it may be. I never use hens to hatch with, therefore I will speak of incubator chicks entirely, but I believe you can safely apply all my rules to hen-hatched chicks just the same.

This is a very important time in the baby chicks career. There are two grave dangers—the chilling of the chicks, and where too many are brooded together, the over-heating caused by crowding. To overcome these in a degree, I always have several market baskets on hand and use some of the many feed sacks that accumulate around where chickens are raised. I divide the babies into bunches of not more than 25 to the basket, with the sacks under and over them. These baskets are kept in the house for several hours.

Some finicky housekeepers may have a fit, but what did I tell you at first—do you like 'em? You will naturally lift the covering every few minutes to peep at the fluffy little dears and in this way you are getting them accustomed to the cooler air gradually.

Of course if you are raising thousands of chicks you will have a coal burning brooder in a good warm house, which will be quite a different proposition. But I am not trying to tell the big poultry raiser anything. I am only hoping to help some beginner get a good start or perhaps help a little, the person who like myself, only intends to raise a few hundred but wants good ones.

Uses Feather Hovers

I use the feather hovers. These are placed in a warm brooder house with about 50 chicks to the hover. My, how they do like these hovers. They are just like an old hen only better, for they do not eat nor step on the chicks, and the grandest thing of all they do not have lice. On the brooder floors is either clover or oats chaff, not too deep at first.

While the chicks are still in the baskets, I scatter some fine chick grit on the bottom and the bright particles cause the chicks to begin picking. It isn't long until it is all cleaned up. At this time, too, I invert a jelly glass in a small, shallow dish and give them water, watching to see that they do not get wet and chilled.

When they are at least 36 hours old and have eaten their grit, I consider them ready for their first real feed. Did you ever stoop down close to a bunch of chickens when they are asleep and listen to the grinding noise in their little gizzards. Now what do you suppose would happen if they did not have the grit first? The food would pass through those little mills only half or not at all digested and would cause bowel trouble. Now you see why I deem it very necessary that they have the grit before they get any feed.

The First Feed.

The babies are put down upon the chaff and a small amount of H-O steam cooked chick feed is spinkled around for them to work at. By the way, I am not getting paid for advertising any feed or any other article I may mention. I am only telling you what I use because I consider it the best for the purpose. Every grain of this feed is steam cooked and then thoroughly dried and will not cause bowel trouble. I have used it for five years and would not try to raise chicks without at double the cost.

At the same time they get the grain feed, I also fill small feeders with Blatchford's Milk Mash and keep it before them all the time until they are about 10 or 12 weeks old when I add one quart of coarse bran to every gallon of mash. If I have any young fries I want to push a little, I also add one quart of cornmeal.

Danger in Overfeeding.

There is much more danger in overfeeding at first than there is of not feeding enough. Better be saving of your feed at first, for they will need it later on. After the chicks are a week old I keep fine charcoal and chick grit before them in feeders all the time. It is surprising how much they will eat of both. If the grit is put out at first they seem to eat too much. I believe it is the bright specks of sand that attract them until they get old enough to know that the grit is not food.

Green food of some kind they must have as long as they are in the brooder and I always use the tops off the oats sprouted for the old birds. These fill the bill nicely until the chicks can be turned out into the yards. It is their nature to be on the ground and I always get them out as soon as the ground is at all warm. They seem to gain

strength from the contact with Mother Earth. If the sun is shining real warm I often put the chicks out on the grass to sun before putting them in the brooder.

After the tenth day I feel that my chicks are safe, so far as any of the chick diseases are concerned. If at any time there is any signs of irregularity of the bowels I use Avicol tablets in the drinking water.

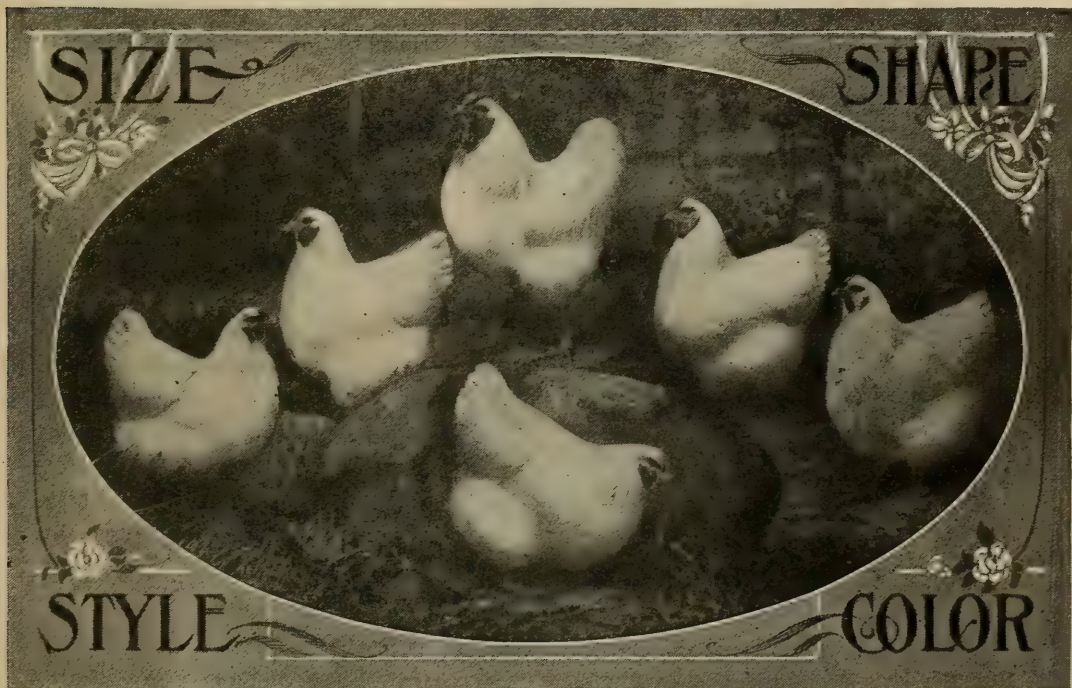
If I notice a chick being "off" it is removed and if the case looks serious it is killed. As well as I like them I would rather kill one than to risk losing several.

From the time they are eight weeks old, I cull out the best developed chicks and these are put into another house. The others are given a better chance to develop, for the biggest and strongest ones always run over and push the others back and they do not have an equal chance.

Sweet or Sour Milk Good.

There is one other thing I like to feed very much and that is milk, either sour or sweet. If I start a bunch of chicks with sweet milk I never give them sour milk and vice versa. Some people object to sour milk and some do not like sweet milk. I do not want an alternate feeding of sweet and sour milk.

In summing up the whole thing I would say, be sure of the parent stock, do not allow chicks to get chilled, feed regularly and the best feeds, give plenty of water and grit, keep things clean and if your Black Langshan chicks don't grow to be fine big fellows you haven't the required qualifications I mentioned at first.



A pen of high class White Wyandottes.

CHAPTER SIXTEEN



RAISING WHITE FACED BLACK SPANISH CHICKS.

By J. W. Friesner, Bremen, Ohio.

How to care for the baby chicks, after they have been hatched, is a very important subject, and many a new beginners meets with his or her downfall at this stage of the game.

We have used the following method for years and have been very successful.

After the baby chicks are forty-eight hours old we remove them from the incubators and they are given a light feed, toasted bread crumbs, moistened with milk and sprinkled over with fine chick grit. Then they are placed under a home-made brooder, which is made on the plan of the coal burning brooder, only we are fortunate enough to live in the natural gas belt and use gas for fuel.

We give them their feed on clean paper spread before them and after through paper is removed and a clean one used next time. This method keeps their feed out of the sand that we cover the floor with under the brooder.

Five Feeds a Day.

We feed the chicks five times a day for the first week and after the second day we substitute Spratt's chick meal soaked in warm water or milk for the bread crumbs, which is fed to them two or three times a day and a good commercial chick grain feed is used for the balance of the day. The grain is scattered in the sand to give them plenty of exercise.

Small grit and fine charcoal, sour thick milk and water are before them at all times.



A grand specimen of a White Faced Black Spanish male. Bred and owned by J. W. Friesner & Son, Box S, Bremen, Ohio.

Care must be taken not to overfeed them, as there is more danger in doing this than in underfeeding. We aim to feed each time just what they will clean up in about ten minutes.

At the end of the first week we commence feeding them three times each day, morning feed of Spratt's chick meal soaked in milk or warm water, water noon and evening feed of chick grain.

Prefers Blatchford's Milk Mash.

Commencing at the end of the first week we keep Blachford's Milk Mash before them all the time in a box about two inches deep covered with a wire netting (1 in. mesh) which prevents them from wasting the mash.

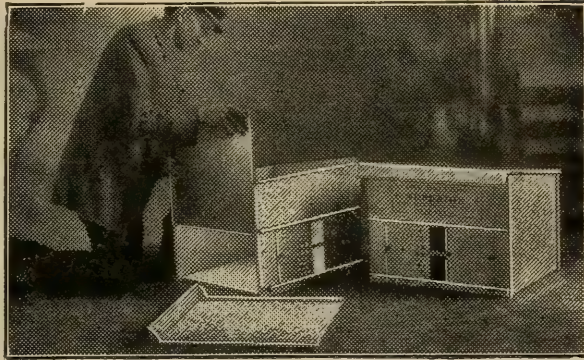
For green food we allow them to run out in small parks, weather permitting, in which oats, wheat and rape has been planted.

When the chicks are 8 to 10 weeks old they are given free range, cockerels separated from the pullets and fed a grain mixture of wheat, cracked corn and steel cut oats and a good dry mash consisting of bran, corn meal, middlings and beef scrap, which is kept before them all the time in hoppers.

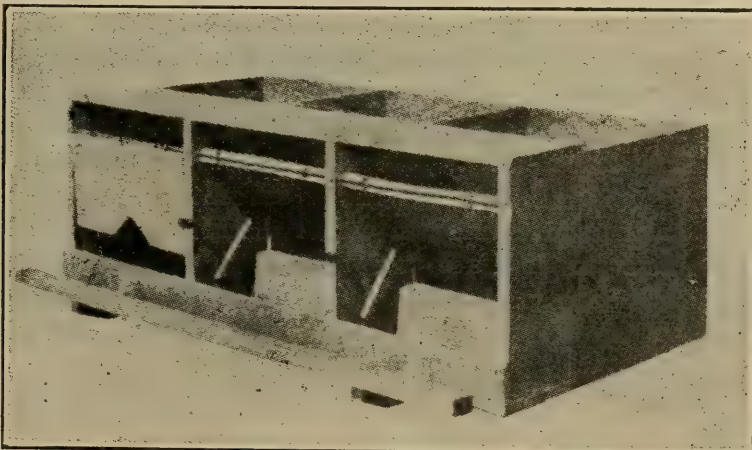
Varied Diet For Best Results.

It should be remembered that a young chicken has to grow bone, muscle, and a coat of feathers at the same time. No one food will answer these requirements and the more varied the diet the better the results.

By this brooding and feeding method, as we have described we have been able to have our White Laced Black Spanish and Single Comb White Leghorn pullets hatched early in March to commence laying the first week of August.



Many poultry keepers use these all metal, take-apart broods coops.



Trapnests, like these, are being used more and more.

CHAPTER SEVENTEEN



HOW TO BROOD CHICKS SUCCESSFULLY

By Prof. F. W. Kazmeier, Poultry Husbandman, A. and M.
College of Texas.

Strongly fertilized eggs, properly incubated, should begin to hatch on the morning of the 20th day and should all be hatched by the end of that day. Keep them in the incubator 24 to 36 hours after they are hatched and during this time start up the brooder or brooders; get them thoroughly dry and the temperature properly regulated.

In the brooding of chicks, no matter what kind of brooding arrangement is provided, the main things to be watched are temperature and ventilation. The temperature should be about the same as in the incubator at the time the chicks are removed. In winter, provide a temperature of 100 degrees. In summer a temperature of 95 degrees gives best results. The first few days in the brooder, the chicks require sleep, rest and proper temperature more than anything else.

They require pure, fresh water, so provided that they cannot get into it and wet themselves. Provide this from the first day. In fact, when for any reason it becomes necessary to confine the chicks in the incubator longer than usual, give them water while in the incubator. This will prevent them developing an abnormal thirst that would cause them to drink too much water in the brooder. When they are given water keep it before them all the time.

Do not place it before them only at certain intervals, because in doing so they are likely to drink too much and too irregularly. In providing water it is important to provide it in such a way that all may get their fill without crowding or trampling. One chick size fountain to each fifty chicks is sufficient, but two are better.

95 Degrees First Week

During the first week the temperature should not be allowed to drop below 95 degrees. After that time, the temperature may be gradually reduced at the rate of $2\frac{1}{2}$ degrees per week, until the chicks can do without heat. Beginners will find it desirable to have a thermometer in their brooders. Many successful operators do not use a thermometer, preferring to watch the chicks and their actions and allow them to indicate the desired temperature. Generally speaking, it is better practice to be governed by the actions of the chicks, rather than the reading of a thermometer.

Remember, the temperature must be kept high enough to prevent crowding, yet it should not be so high as to drive the chicks out from under the hover and away from the source of heat. The temperature should be kept as uniform as possible. Guard against extremes and sudden changes.

Each morning look under the hover and note the position of the litter; if it is scratched away from the source of heat, it shows that the chicks crowded toward the source of heat in their attempt to get warm; if it is piled up against the heater drum or pushed toward the center of the hover, it shows that the temperature was too high, causing the chicks to move away from the source of heat and scratch the litter toward the same.

I like a temperature as near correct and uniform as possible, at the same time, would prefer to err on the side of a little too high than too low temperature. If it is a little too high, they can move away from the source of heat; but if it is too low, the best they can do is to crowd as much as possible, and so doing the weaker ones are often injured or trampled to death. Remember a chilled chick is about the same as a dead chick.

Avoid Chilling The Chick

Chilling artificially brooded chicks causes brooder pneumonia, which annually kills many millions of small chicks. Chilling also frequently causes bowel trouble and diarrhoea. In fact, chilling is perhaps the second greatest cause of mortality in brooder chicks, with over-heating as the third. Over-heating small chicks has a tendency to weaken their constitution, bake the non-absorbed yolk, and cause indigestion through the souring of feed in the crop and digestion system. It frequently is the cause of bowel trouble and so-called common diarrhoea.

What is needed is a mild, uniform, radiated top heat. I do not believe in bottom heat. Bottom heat has a tendency to cause leg weakness and rheumatism. Just enough bottom heat to keep the floor dry is satisfactory, but no more. I have no preference as to hot water or hot air heat. At night the temperature should at all times be high enough to drive the chicks partly from under the hover, causing them to locate near the fringe or hover curtain.

Oxygen, which can only be provided in the form of fresh air to small chicks, is as important or more so and if not properly provided, failures can be the only result. The air in the exercising room should always be fresh and sweet-smelling, even though it may be necessary to increase the ventilation to such an extent as to lower the temperature quite a little.

Provide Plenty of Fresh Air

It is better that the air in the exercising room should be rather cold and sweet-smelling than warm and foul-smelling. Too much cannot be said in favor of providing small chicks with plenty of fresh air without drafts.

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